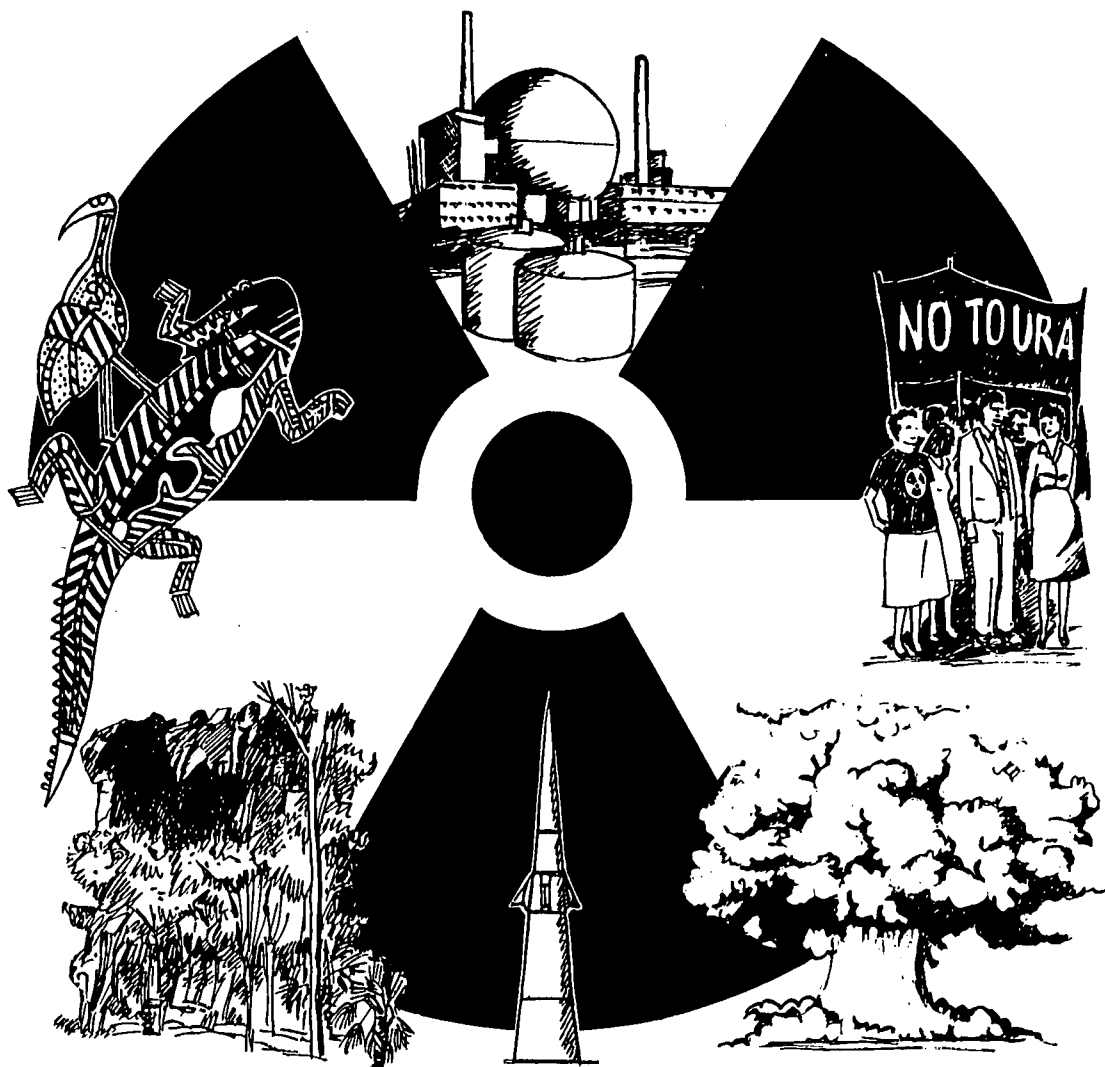


Ciaran O'Faircheallaigh
Ann Webb
Deborah Wade-Marshall

URANIUM IN AUSTRALIA 1970-1987 AN ANNOTATED BIBLIOGRAPHY



**ANNOTATED BIBLIOGRAPHY
OF
URANIUM IN AUSTRALIA
1970-1987**

**Ciaran O'Faircheallaigh, Ann Webb
and
Deborah Wade-Marshall**

First published in Australia 1989

Printed in Australia by the Australian National University
© Australian National University North Australia Research Unit

This book is copyright. Apart from any fair dealing for the purpose of private study, research, criticism or review, as permitted under the Copyright Act, no part may be reproduced by any process without written permission. Inquiries should be directed to the publisher, North Australian Research Unit, Casuarina NT 5792, Australia

National Library of Australia
Cataloguing-in-publication entry

O'Faircheallaigh, Ciaran.
Annotated bibliography of uranium in Australia,
1970-1987.

Includes index.
ISBN 0 7315 0543 3.

1. Uranium industry - Australia - Bibliography.
2. Uranium mines and mining - Australia -
Bibliography. I. Webb, Ann. II. Wade-Marshall,
Deborah. III. Australian National University.
North Australia Research Unit. IV. Title.

016.3382'74932'0994

CONTENTS

Abbreviations	vi
Location Map: Australia's Uranium Deposits	viii
Acknowledgements	ix
Introduction	x
1. Scope, Organisation and Sources Ciaran O'Faircheallaigh	1
2. Uranium in Australia, 1970-1987: An Overview Ciaran O'Faircheallaigh	7
PART ONE The Australian Uranium Industry	
1. General	26
2. Uranium Industry, Individual States	39
3. Uranium Resources	41
4. Uranium Exploration	43
PART TWO The Uranium Debate	45
PART THREE Uranium Policy	
1. Commonwealth Government Policies	88
2. Australian Atomic Energy Commission	101
3. Ranger Uranium Environmental Inquiry	103
4. ASTEC Inquiry	111
5. State Government Policies	115
6. Legal Aspects and Legislation	119
7. Australian Labor Party Policy	129
8. Australian Democrats Policy	138
9. Trade Union Policy	139
10. Lobbyists and Lobby Groups	144
11. Public Opinion	152
12. Role of the Media	153
13. Uranium and Civil Liberties	155

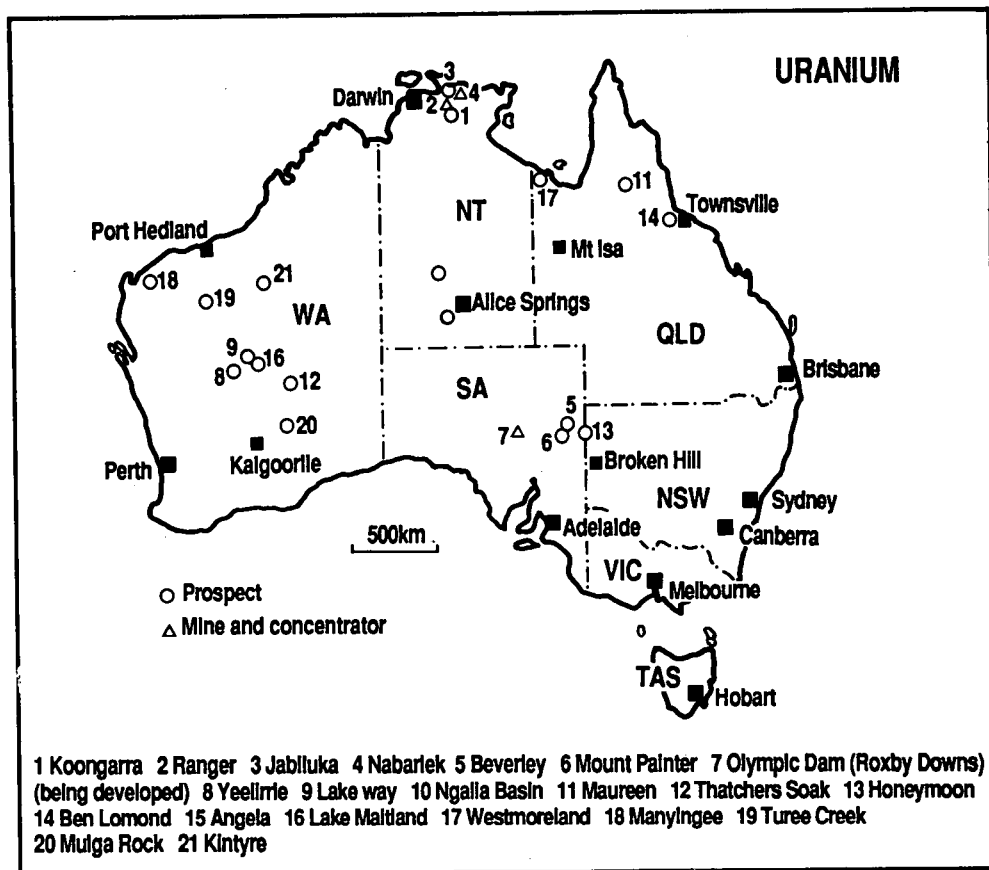
PART FOUR	Uranium and Aborigines	
1.	General	157
2.	The Ranger Agreement	181
3.	Aborigines and Uranium Royalties	185
PART FIVE	Economic Aspects	
1.	Economic Impact of Uranium Mining/ Economics of the Uranium Industry	188
2.	Uranium Demand, Markets and Prices	194
PART SIX	Processing and Use of Uranium in Australia	
1.	Nuclear Power Generation	206
2.	Uranium Enrichment and Processing	210
PART SEVEN	Environmental Aspects	
1.	General	218
2.	Environmental Impact of Uranium Mining	220
3.	Environmental Monitoring	235
4.	Nuclear Waste Disposal/Storage	239
5.	Worker Safety/Health Risks	247
6.	Environmental Impact Statements	256
PART EIGHT	Nuclear Proliferation and Nuclear Safeguards	
1.	Nuclear Proliferation	266
2.	Nuclear Safeguards	279
PART NINE	Individual Uranium Projects	
1.	Ben Lomond	286
2.	Honeymoon	286
3.	Jabiluka	287
4.	Koongarra	288
5.	Mary Kathleen	289
6.	Nabarlek	289

7. Ranger	290
8. Roxby Downs/Olympic Dam	294
9. Rum Jungle	295
10. Yeelirrie	296
Author Index	297

ABBREVIATIONS

ACOA	Administrative and Clerical Officers Association
AEEC	Australian Atomic Energy Commission
ACF	Australian Conservation Foundation
ACTU	Australian Council of Trade Unions
AGPS	Australian Government Publishing Service
AIDC	Australian Industrial Development Corporation
ALP	Australian Labor Party
AMIC	Australian Mining Industry Council
ANPWS	Australian National Parks and Wildlife Service
ANSTO	Australian Nuclear Science and Technology Organisation
ANU	Australian National University
ASTEC	Australian Science and Technology Council
AUPF	Australian Uranium Producers Forum
AusIMM	Australasian Institute of Mining and Metallurgy
BHP	Broken Hill Proprietary
CEDA	Committee for Economic Development of Australia
CLP	Country Liberal Party
CRA	Conzinc Riotinto of Australia
DEIS	Draft Environmental Impact Statement
EEC	European Economic Community
ERA	Energy Resources of Australia
ERMP	Environmental Review and Management Programme
FEIS	Final Environmental Impact Statement
FOE	Friends of the Earth
IAEA	International Atomic Energy Agency

ICRP	International Commission of Radiological Protection
INFCE	International Nuclear Fuel Cycle Evaluation
MAUM	Movement Against Uranium Mining
MKU	Mary Kathleen Uranium
MLA	Member Legislative Assembly
NCP	National Country Party
NEA	Nuclear Energy Agency
NLC	Northern Land Council
NPT	Non Proliferation Treaty
OECD	Organisation for Economic Cooperation and Development
OSS	Office of the Supervising Scientist
QML	Queensland Mines Ltd
RUEI	Ranger Uranium Environmental Inquiry
RUM	Ranger Uranium Mines
SWU	Separative Work Unit
UEGA	Uranium Enrichment Group of Australia
UIC	Uranium Information Centre
UPF	Uranium Producers Forum
WMC	Western Mining Corporation



ACKNOWLEDGEMENTS

Research funds for compiling this bibliography were provided by the North Australia Research Unit of the Australian National University and by the University Research Committee of Griffith University. The North Australia Research Unit also provided assistance for the project in a variety of other ways and our particular thanks are due to its Field Director, Peter Loveday, and its library staff, Colleen Pyne and Sally Roberts. Our thanks are also due to library staff at the Northern Territory Department of Mines and Energy, the Australian Nuclear Science and Technology Organisation and Griffith University, and to the Centre for Advancement of Teaching and Learning, Griffith University, for assistance with graphics.

The text was typed by Yvonne vander Weyden; preparing an annotated bibliography must be one of the most frustrating tasks a keyboard operator can face, and we greatly appreciate Yvonne's skill, patience and good humour in performing this unenviable work.

Ciaran O'Faircheallaigh
Griffith University
Brisbane

Ann Webb
North Australia Research Unit
Darwin

Deborah Wade-Marshall
Formerly North Australia Research Unit
Darwin

INTRODUCTION

Uranium mining has been one of the most consistently controversial issues on the Australian political scene during the last two decades. It is not difficult to see why. It combines a number of issues any one of which can generate considerable controversy and in many cases strong emotion.

The first issue involves nuclear power and nuclear war, and arises from uranium's role as the basic raw material in nuclear power generation and nuclear weapons manufacture; it raises questions regarding appropriate energy strategies and lifestyles and, in the view of some people, the continued existence of the human race. The second issue concerns the capacity of the physical environment to continue to absorb the impact of human populations and modern industrial production, and it is associated with the potential impact of uranium mining and other stages of the nuclear fuel cycle on the natural environment and on human health. This impact gains additional significance from the very long time period over which certain waste products generated by the nuclear fuel cycle can impact on the environment and from the location of a number of key uranium deposits within the Kakadu area, which is widely recognised as one of Australia's richest regions in biological and archeological terms. The third issue relates to the impact of European incursion on Australian Aborigines and their culture; it arises from the fact that many of Australia's richest uranium deposits are located on land owned, claimed or occupied by Aboriginal people, and that the deposits first developed or considered for development are in the Alligator Rivers Region, inhabited by Aborigines regarded as being among the most 'traditional' in Australia.

The development of Australia's uranium industry, and the controversy surrounding it, have generated a very substantial literature both on the general question of whether, to what extent and under what circumstances Australia should mine and export uranium, and across a whole range of more specific political, economic, social, environmental and moral issues. In 1987 Ciaran O'Faircheallaigh began to survey this literature in preparation for writing a major study on the Australian uranium industry, based on his research on the Ranger and Nabarlek uranium mines in the Northern Territory. He found that a substantial part of the literature was not easily accessible, having been produced outside 'mainstream' academic publishing channels, in places where material on the development of Australia's mineral resources is rarely

found, or by organisations whose existence was short-lived. The purpose of this bibliography is to make the literature on uranium mining in Australia more accessible, and to do so in a way which is of greatest use to the reader by providing not only a list of references, but also in most cases an indication of what each piece of literature contains; thus some 80 per cent of the entries in the bibliography are annotated.

The debate over uranium mining is not only of interest in a historical context. While its political salience will ebb and flow, it seems certain that controversy will continue to surround the uranium issue for some time to come.

Demand for Australia's uranium is most unlikely to disappear. Disarmament agreements are unlikely to rid the world of nuclear weapons in the foreseeable future and, nuclear reactor accidents notwithstanding, those countries already committed to nuclear power are unlikely to abandon it. Indeed the necessity to reduce burning of fossil fuels because of the greenhouse effect will certainly lead to demands from some quarters for an expansion of nuclear power programmes.

Australia possesses a substantial proportion of the world's low-cost uranium reserves, and considerable potential for additional discoveries. It seems certain that corporate interests will continue to see these as presenting opportunities for profitable investment, that some Australian politicians will view their exploitation as helping to deal with pressing economic problems, and that some Aborigines will regard the royalties they can generate as offering their only hope of raising their living standards while reducing their dependence on government. On the other hand many Australians, Aboriginal and non-Aboriginal, will continue to believe that there are environmental, social and other costs associated with uranium mining and the nuclear cycle which it fuels, and that these outweigh what many of them see as dubious economic benefits.

Making the existing literature on uranium mining more readily accessible is not going to settle these arguments, as both points of view will find much to support their case. However, it should assist those who are interested in extending their knowledge on the uranium issue, and in this way may facilitate a more informed debate.

1. SCOPE, ORGANISATION AND SOURCES

Scope

The scope of this work is a compromise between our desire for comprehensiveness and the limited resources at our disposal. In order to make the exercise feasible, its scope had to be limited, yet we are aware that it is extremely difficult to draw neat boundaries in terms of time, geography or subject matter in relation to many of the issues raised by uranium mining in Australia, and that at least some users of the bibliography are likely to feel dissatisfaction with whatever limitations we impose.

The first point to emphasise is that this is a bibliography of uranium mining in Australia; we have consequently dealt with matters which have, or are claimed to have, a direct link with the mining of Australian uranium. So, for instance, we have included items which draw a link between the export of Australian uranium and nuclear weapons proliferation, but not those which discuss the issue of proliferation without reference to Australian uranium. To cite another example, we have included material dealing with the advantages and disadvantages of nuclear power where this is being used to support, or to reject, mining of Australian uranium, but not items which deal with the advantages and disadvantages of nuclear power per se. It can be difficult to draw such distinctions consistently, but we had no alternative; compiling a general bibliography on even one aspect of the nuclear cycle would be a formidable undertaking.

The bibliography is not restricted to material originating in Australia, and indeed we have made every effort to include relevant items produced overseas.

A second consideration involves the degree of technicality which characterises material; in general, we have only included items which we believe could be understood by those without a technical training in, for example, geology, organic chemistry or nuclear physics. We have two reasons for doing this. First, our expertise is in the area of social, economic and political analysis, and consequently we did not feel confident of our ability to accurately present analyses based on information of a highly technical kind. Second, some areas of technical literature are very extensive, and again would justify a major bibliography in their own right; this applies particularly to the geology of uranium in Australia. (Much of the geological literature is already listed in two major bibliographies, AESIS and INIS: see below, p 5).

The bibliography covers material produced from 1970 onwards; we picked this starting date because it was in

that year that the Ranger and Nabarlek uranium deposits were located, initiating the discovery and development of Australia's large low-cost uranium resources.

The fact that this is an annotated bibliography has influenced the nature of the materials which could be included. We used only items which could be sighted, and so confidential reports or documents have been excluded. In addition, it was not feasible to annotate certain types of material, for example records of evidence heard by inquiries and the text of legislation dealing with uranium mining.

In sum, this is a bibliography of materials which deal with uranium mining in Australia during the period 1970 - 1987, which it is feasible to annotate, which are publicly available, and which are not of a highly technical nature. We located 845 separate items which met these criteria. Given the points made earlier regarding the origin and method of publication of much material on uranium mining, the bibliography is unlikely to be exhaustive. However, we are confident that it is comprehensive and certain that it is representative of all viewpoints on the various aspects of the uranium mining issue in Australia.

Organisation

The bibliography is organised according to subject area and is in nine major parts, all but one of which are divided into sections (see Table of Contents). Entries are numbered from 1 onwards in a single sequence throughout the text. They are listed alphabetically by author within each section, except in the one dealing with Environmental Impact Statements, where entries are organised around specific projects (see text, p256). Any anonymously-authored items are placed at the beginning of each section and are arranged by date of publication. Where state or territory government departments are authors, the department's name is preceded by the relevant prefix (e.g. Northern Territory Department of Mines and Energy); departments without a prefix are federal.

Items were assigned to sections and sub-sections on the basis of their principal subject matter, with cross references being added in cases where more than one subject area was dealt with. So, for instance, an item which dealt mainly with Australian Labor Party (ALP) policy on uranium would be assigned to the section 'ALP Policy', but if it contained some information on trade union attitudes to uranium a cross reference (i.e. the number of this item) would be included at the end of the 'Trade Union Policies' section. Thus a reader interested in trade union policies should first read the entries in that section and then use the list of numbers at the end to find cross references to

entries in other sections which contain some material on trade unions.

Part One deals with the development and structure of the uranium industry in Australia as a whole and in individual states and with uranium exploration and uranium resources. Part Two, The Uranium Debate, consists of items which address the general issue of whether Australia should mine its uranium from a number of different perspectives.

Part Three deals with uranium policies, and is general in focus; items dealing with specific aspects of uranium policy (for example environmental monitoring, nuclear safeguards) are dealt with separately. The first section covers Commonwealth policy, and includes material dealing with both ALP and Liberal/National Party governments. Items on the Australian Nuclear Science and Technology Organisation (formerly the Australian Atomic Energy Commission) and on two key public inquiries into uranium policy, the Ranger Uranium Environmental Inquiry (the 'Fox Inquiry') and the ASTEC Inquiry into Australia's Role in the Nuclear Fuel Cycle (the 'Slatyer Inquiry'), are dealt with separately. The fifth section deals with the policies of state governments, while the sixth presents material on legal and legislative aspects of uranium mining. This is followed by a section dealing with the policies of the ALP, as opposed to Labor governments; while substantial literature exists in this area, no comparable items were identified dealing with the Liberal or National parties. The remaining sections of Part Three deal with the Australian Democrats, trade union policies, lobby groups, public opinion, the role of the media, and uranium and civil liberties.

Part Four deals with uranium and Aborigines, the first section covering general material on this issue, the second dealing with the signing of the Ranger Agreement (a source of considerable controversy: see below, p 22), and the third with the issue of royalties from uranium mining. Part Five deals with economic issues, with sections on the economic impact of uranium mining and the economics of the uranium industry and on markets for Australian uranium. Part Six deals with the issue of domestic processing and utilisation of Australian uranium, with sections on nuclear power in Australia and on enrichment and other forms of uranium processing. Part Seven covers environmental issues and includes sections on the environmental impact of uranium mining, environmental monitoring, storage and disposal of nuclear wastes, health and safety aspects, and environmental impact statements. Part Eight deals with nuclear proliferation and nuclear safeguards, while Part Nine contains sections on each major uranium project.

Both for reasons of space and to avoid repetitive reading for the user, not all items included in the bibliography have been annotated. In particular (1) Where a single author presents similar information or arguments in a number of locations, some of these are not annotated; generally, the more extensive source of information is annotated and references provided to briefer items. (2) Items which simply report information or arguments put forward by others without comment or analysis are generally not annotated; a substantial number of newspaper and magazine articles, for example, fall into this category. (3) Items which are very brief and consequently do not offer the depth of information and analysis available in other sources, but which those with a specialist interest in a particular area might wish to pursue, are generally listed rather than annotated. Our judgements in this regard have, of course, taken account of the availability of information on specific topics; in cases where little information is available (e.g. details of long-term uranium contracts), most entries are annotated. (4) A small number of items which are crucial to an understanding of Australia's uranium policy (for instance the Ranger Uranium Environmental Inquiry Reports) are discussed in detail in the next chapter; they are listed in the bibliography, with a reference to the relevant pages in the text.

The purpose of the annotations is to give the reader a clear idea of the subject area or areas dealt with in a piece of literature, the type of information it contains, and the nature of any analysis or argument it presents. The annotations do not seek to summarise all of the material contained in an item, but rather to convey clearly the nature and extent of that material.

Two other points should be made regarding the annotations. First, we do not seek to 'take sides' in the uranium debate, and so simply reproduce the views of authors without seeking to endorse or reject their arguments; similarly, any imbalance in the quantity of items favouring one or other side of the debate reflects the composition of the literature rather than any selectivity on our part. Second, it should be emphasised that there is no direct relationship between the length of an annotation and either the length of the item concerned or our assessment of its value. It is sometimes possible to annotate a 150-page monograph which provides extensive and detailed factual information on one aspect of the uranium debate more briefly than a 10-page article which raises complex arguments in relation to a number of different issues. We apologise in advance to any authors who feel that we have not adequately described the content of their work, and hope that the additional exposure they receive through this bibliography will be sufficient compensation.

Sources

The materials cited generally fall into the following categories: (1) Books and monographs or relevant parts thereof. (2) Articles published in journals, magazines and newspapers, though only 'feature' articles from newspapers (i.e. those which present information and analysis and do not simply report 'news') are included. (3) Pamphlets, information papers, and reports produced by various organisations, including government agencies. (4) Conference papers which became publicly available after their presentation (for example in conference proceedings or on microfiche). Certain items were located in two forms, initially as a conference paper or a working paper and subsequently as a journal article; in these cases only the 'final' form is included.

Our major sources of references for the bibliography were:

(1) The International Nuclear Information System (INIS) computer database, which was made available to us through the Australian Nuclear Science and Technology Organisation; it was searched from 1970 to 1987. INIS receives inputs from 48 countries, and was therefore a valuable source for material on Australian uranium published overseas.

(2) Two Special Lists on Uranium produced by the Australian Mineral Foundation from the Australian Earth Sciences Information System (AESIS) data base (Special List No. 1B, Uranium 1976-1980, and Special List No. 1B/S1, Uranium: a supplementary list of references from AESIS 1981-1982).

(3) URICA, the Australian National University's computer-based library catalogue; a general search was conducted for material on Australian uranium, and appropriate items selected.

(4) The National Library of Australia's Australian Public Affairs Information Service (APAIS), which offers a subject guide to literature on Australia based on a comprehensive indexing of over 200 journals published in Australia and a selective indexing of all other Australian periodicals, capital city daily newspapers and national weeklies, pamphlets and conference proceedings, and all overseas publications received by the National Library. APAIS was searched for the period 1970-1987.

(5) The National Library of Australia's Australian National Bibliography (ANB), which lists books and pamphlets published in Australia (including government publications). ANB was searched for the period 1970-1987.

(6) The Annual Bibliography of the Australian Institute of Aboriginal Studies (AIAS), which lists materials added to

the Institute's library; this was searched for the period 1975/76 - 1987.

(7) The following bibliographies on uranium in Australia:

Australian Atomic Energy Commission (AAEC), Uranium Mining and Processing in Australia: A Bibliography, AAEC-LIB/BIB No. 349, Australian Atomic Energy Commission, Lucas Heights, May 1972.

Bureau of Mineral Resources, Geology and Geophysics Library, Uranium in Australia 1975-1978: A Bibliography, Bibliography No. 4, Canberra, 1978.

Thorburn, R., Uranium Mining and Processing in Australia: A supplementary bibliography 1965-1977, AAEC, Lucas Heights, February 1978.

Dreyfus, M.A., 'A Select Reading List on Uranium Mining in Australia 1975-1980', Unpublished, Australian Institute of Aboriginal Studies, Canberra, November 1980.

State Reference Library of Western Australia, Commerce and Technology Division, Nuclear Energy: A Select List, Library Board of Western Australia, Perth, June 1979.

Less formal methods of identifying relevant references were also pursued, for example checking of references in books and articles, searches of journals in which we had already located a number of items on uranium, consultation with individuals involved in the uranium industry or conducting research on uranium issues, and manual searches of uncatalogued collections in the Northern Territory Department of Mines and Energy and the Griffith University Library.

Though we have made every effort to include all material which meets the criteria outlined earlier, users of the bibliography may notice omissions. We would very much like to hear from them; it is planned to produce a supplement updating the bibliography in the future, and any additional references dealing with the period 1970-1987 will be included in that publication.

2. URANIUM IN AUSTRALIA, 1970-1987: AN OVERVIEW

This chapter provides some background information to facilitate use of the bibliography. It begins by presenting a brief and non-technical outline of the nuclear fuel cycle, and proceeds to discuss in broad terms the development of the uranium industry and of uranium policy in Australia over the period since 1970. (References in the text are to the numbers of relevant items in the bibliography.)

Uranium and the nuclear fuel cycle

Like all naturally-occurring elements, uranium consists of atoms each of which has a nucleus at its centre and electrons in orbit around it; the nucleus contains protons and neutrons. All atoms of the same element have the same number of protons in their nuclei, and this is the element's atomic number, 92 in uranium's case. Atoms of the same element may have different numbers of neutrons; the atomic mass is equal to the total number of protons and neutrons in each atom. Atoms with the same number of protons, but different numbers of neutrons, are referred to as isotopes of the same element. Uranium is a mixture of mainly two isotopes, the more common uranium-238 and the rarer uranium-235.

All uranium isotopes are unstable, that is they throw out radiation consisting of protons, neutrons and electrons, creating new isotopes, some of which are themselves radioactive; this process is known as decay. For example, uranium-238 eventually decays to the stable element lead-206, in the process forming radium-226 and a gas, radon-222, both of which are radioactive. Rates of radioactive decay vary considerably because some isotopes of elements are more unstable than others; the rate of decay is measured as a half-life, that is the time for half a quantity of a radioactive isotope to decay (No. 198, p16). Radioactive materials in the environment are constantly decaying, and so humans have always lived with a certain level of radioactivity around them. This 'background' level of radiation does not generate health risks, but such risks can arise if exposure to radiation is increased significantly; considerable controversy surrounds the question of what constitutes a 'significant' increase in radiation exposure (see Part 7, Section 5).

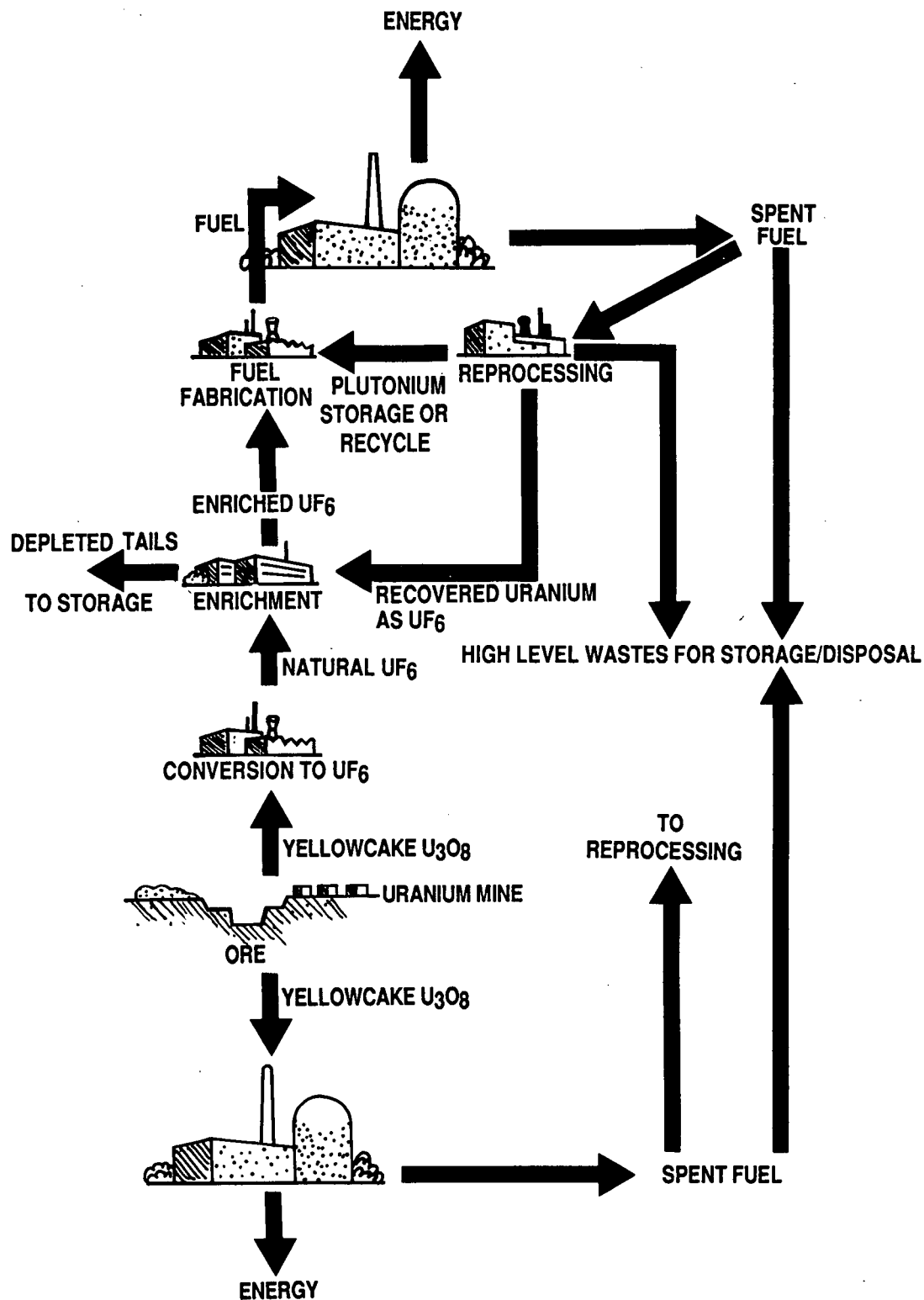
Apart from minor applications which account for a small proportion of total consumption, uranium has only two industrial uses, as a fuel in the generation of nuclear power and as a basic raw material in the manufacture of nuclear weapons.

Figure 1 provides an illustration of the various steps involved in the nuclear fuel cycle. It normally begins with extraction of uranium ore from underground or open pit mines using conventional, capital-intensive methods (i.e. extensive use is made of large-scale machinery and equipment); in some cases, the ore is not removed, and the uranium is extracted by pumping an acid solution through the orebody ('in situ leaching' or 'solution mining'). Uranium is frequently found in combination with other metals, most commonly gold and copper; in certain cases (for example some South African gold mines) these other metals represent the major source of revenue and uranium is recovered as a by-product. The content of uranium in 'commercial' orebodies varies from as low as 0.002 per cent in some South African gold mines to as high as 8.5 per cent in the (as yet undeveloped) Cigar Lake deposit in northern Saskatchewan; the majority of current production comes from orebodies grading between 0.03 and 3 per cent.

Uranium concentrate in the form of uranium oxide or U3O8 (often referred to as yellowcake) is produced by grinding the ore mechanically and removing waste products through a combination of mechanical and chemical processes. These wastes, known as tailings, are usually stored either in the mined-out area or in specially-constructed tailings dams nearby. They contain the remaining elements from the ore (i.e. crushed rock and metals not recovered in the concentrating process, including uranium and other radioactive elements) and chemicals used in the concentrating process. Mine production of uranium is expressed either in tonnes of U3O8 or in tonnes of contained Uranium (U).

The uranium concentrate is usually shipped from the mine in drums; after some up-grading the concentrate can be used to fuel heavy-water nuclear reactors, particularly the Canadian-built CANDU, but the proportion of uranium-235 it contains (about 0.7 per cent) is insufficient to enable its use in the light water reactors which generate much of the world's nuclear power. To increase the uranium-235 content to the required level (about 3 per cent), the concentrate must be converted to uranium hexafluoride, which is a solid at room temperature and pressure but can be converted to a gas by heating, and then enriched using either a gas diffusion or centrifuge process. Conversion and enrichment involve separate processes, sometimes conducted in plants which are a considerable distance apart. Currently, major enrichment plants are located in the United States, the United Kingdom, the Soviet Union, France, and China; Australian uranium is enriched in all but the last of these countries. Australia does not possess conversion or enrichment facilities.

Figure 1



The discarded product from enrichment, the 'tails', contains about 0.25 per cent uranium-235. The level of uranium-235 in tails (the 'tails assay') determines the volume of uranium concentrate which is required to produce a given amount of enriched uranium; the higher the tails assay the larger the volume of concentrate which is required.

Enriched uranium is prepared for use in reactors in fuel fabrication plants. It is shipped to these plants in the form of solid uranium dioxide (UO_2), then pressed into small pellets which are fed into long thin tubes of a zirconium metal alloy to produce fuel rods. These rods are then arranged into assemblies for use in nuclear power reactors.

Nuclear power generation was made possible by the discovery, in the late 1930s, that when uranium-235 atoms are bombarded by neutrons they split into two smaller atoms and at the same time release energy, a process known as fission. When this occurs, more neutrons are set free and they in turn split more atoms; if this process can be controlled it develops into what is termed a chain reaction, generating very large quantities of energy. This is what occurs in a nuclear power plant. Energy is produced by the fission of uranium into lighter atoms; this energy is used to heat water and produce steam which, as in conventional power stations, turns a turbine and generates electricity. Additional energy is generated by another nuclear process; neutrons are captured by the common isotope uranium-238 to form a new element, plutonium, which is also radioactive and divides to form more fission products.

The fast breeder reactor, an alternative method of nuclear power generation, has been the subject of substantial research. Its fuel assemblies would consist of plutonium and uranium-238. The plutonium would release neutrons which would be absorbed by the uranium-238, creating fissile plutonium-239. This process would generate more plutonium than it would use, thus the term 'breeder' reactor; the additional plutonium would then be utilised in generating energy. Fast breeder reactors would substantially reduce the demand for newly-mined uranium, but while considerable progress has been made on an experimental basis, major technical obstacles exist to the development of commercial reactors.

The lighter atoms produced in fission of uranium tend to 'poison' or slow down the nuclear reactions, and so the fuel must be removed from the reactors before all of the uranium-235 has been consumed. A considerable amount of plutonium also remains; in addition, the process generates intensely radioactive fission products of the uranium-235 (for example caesium-137 and strontium-90) and small

amounts of transuranic elements (neptunium, americum and curium) which require as long as a million years to decay to safe levels (No.700, Part III, p1). These products are all termed 'high level nuclear wastes'; they are extremely toxic and would constitute a grave threat to all forms of life if released into the environment, and their disposal has generated great concern and considerable debate in Australia (Part Seven, Section 4). Much larger quantities of low level waste are also generated, for example tools and protective clothing used in handling radioactive materials and, eventually, the steel and concrete structures used to house the nuclear reactor.

Spent fuel assemblies must be stored for some years to allow them to cool, after which two options exist for dealing with them (see Figure 1). They can be disposed of, for example by being encapsulated in a material (e.g. borosilic glass) and then placed in a depository which is thought to be geologically stable and unlikely to be affected by water, for instance a disused salt mine. In practice, major problems have been encountered in devising effective waste disposal techniques, and most of the high-level waste intended for disposal is in fact still in storage.

Alternatively, the spent fuel rods can be put through a reprocessing plant. In this case they are cut into small pieces and dissolved in nitric acid; solvent is added to the acid solution allowing separation and recovery of uranium, plutonium and transuranic elements. However recovery is only partial and the process leaves a residue of high-level liquid wastes (No.700, Part III, p2; No.198, p58-59). Reprocessing plants were originally designed to process spent fuel from military reactors producing plutonium for use in nuclear weapons (see below); the fuel extracted from commercial reactors is considerably more radioactive, and serious difficulties have arisen in reprocessing it. Only two commercial plants are currently in operation, in the United Kingdom and in France; a third plant in the United States was closed in 1982. Reprocessing does not make a substantial contribution to the supply of uranium, and this situation is unlikely to change in the near future.

As mentioned above, nuclear power generation involves the creation of a controlled nuclear chain reaction; atomic and thermonuclear weapons involve creation of an uncontrolled reaction. (Both types of weapons are 'nuclear'; however, in the literature atomic weapons are sometimes referred to as 'atomic' and thermonuclear weapons as 'nuclear'). In an atomic bomb specially shaped pieces of fissionable material are shot together with ordinary explosive to create one piece of material which is large enough to trap and concentrate a sufficient number of neutrons to bring about an uncontrolled chain reaction, i.e. a nuclear explosion.

Thermonuclear weapons utilise fusion, a nuclear reaction in which two light nuclei fuse together to form one heavier nucleus, in the process releasing a large amount of energy. Thermonuclear weapons have a much greater potential for destruction than atomic ones (No.198, p18-20).

A major issue in the uranium debate concerns the degree to which commercial nuclear power reactors are used, or can be used, as a source of weapons-grade uranium or plutonium and consequently the degree to which 'peaceful' use of nuclear power is linked to production of nuclear weapons (see Part Two and Part Eight, Section 2).

Uranium in Australia, 1970-1987

Large-scale uranium mining was initiated in Australia in the early and mid 1950s to supply raw materials for the British and United States nuclear weapons programmes. The most important projects were located at Mary Kathleen in Queensland, Radium Hill in South Australia, and Rum Jungle in the Northern Territory where leaching of heavy metals from waste dumps caused severe environmental damage to the Finiss River system. However, uranium demand for weapons manufacture was to some extent 'once off', and was declining by the early 1960s; the ban on atmospheric testing imposed under the 1963 Partial Test Ban Treaty further depressed demand, and uranium prices declined sharply. Contracts with the United Kingdom and the United States were not renewed; mining of uranium in Australia had ceased by 1964, with processing of stockpiled ore continuing at Rum Jungle until 1971. From 1965 onwards Rum Jungle's output was purchased by the Australian government and stockpiled by the AAEC at Lucas Heights in Sydney.

The first nuclear reactors were connected to electrical power grids in Britain, the United States and the Soviet Union during 1954-1955, but it was some time before nuclear plants came to account for a significant proportion of electricity generating capacity. In 1955 the United States Atomic Energy Commission, established in 1946 to promote peaceful uses of atomic energy, set up the Cooperative Power Reactor Program to assist privately-owned electricity utilities construct nuclear power reactors. This program provided assistance for 16 reactors, and by the mid 1960s many utilities had embarked on reactor construction programmes; by July 1976, 58 nuclear power plants were in operation in the United States. Over the same period other countries also developed major nuclear power programmes, and by 1976 a total of 170 nuclear power plants were generating electricity and 211 were under construction. In addition, a number of governments stated their intention of constructing nuclear reactors; Australia's federal government was among these, with the Prime Minister announcing in October 1969 that a nuclear power station would be built at Jervis Bay on the south coast of New

South Wales. (This decision was reversed in June 1971 as a result of escalation in capital costs and a deterioration in Australia's economic circumstances.) Thus by the late 1960s it was apparent that a substantial market would exist for uranium in the longer term. This perception was heightened by the 1973 oil crisis, which appeared likely to substantially improve uranium's competitiveness as an energy source; 43 reactors were ordered in the United States in 1973 alone.

The expectation of substantial and growing demand for uranium combined with a relaxation of federal government controls on exports of newly-discovered uranium led to renewed exploration activity in Australia (see Part One, Section 4), particularly in Queensland, Western Australia, South Australia and the Northern Territory.

In mid 1970 major discoveries were made in the Alligator Rivers Region of the Northern Territory. Queensland Mines Ltd (QML) located a small, high-grade deposit at Nabarlek in Western Arnhem Land; ore reserves were later estimated at 13,500 tonnes uranium oxide, at an average grade of 2.35 per cent U308. (All figures for ore reserves and mine output in this section are expressed in tonnes of U308.) Long-term contracts were negotiated with Japanese and French electric power utilities and approved by the federal Government, and production was scheduled for 1975. However for reasons explained below development of Nabarlek was delayed until 1979; all of the ore was extracted and stockpiled between May and October of that year, and was milled over the period 1980-1988. Annual production averaged 1,289 tonnes during 1980-1986; QML ceased milling in April 1988 and commenced rehabilitation of the mine site.

At about the same time as Nabarlek was discovered a joint venture between Peko Wallsend and the Electrolytic Zinc Company (Peko-EZ) made a much larger find some 50 km to the south west at Ranger. Three orebodies were located, and two of these were subsequently delineated in detail, indicating total reserves of about 125,000 tonnes. As with Nabarlek long-term contracts were negotiated and an early start to production planned (1976), but it was mid 1979 before development commenced and August 1981 before the first yellowcake was produced. Output averaged 3,100 tonnes during 1982-1986. In 1986 plans were announced to increase the nominal output of the Ranger mill from 3,000 to 4,500 tonnes by 1991 and later to 6,000 tonnes.

In 1976 the Mary Kathleen mine re-opened in response to a marked rise in uranium prices, but closed in 1982 when it had mined sufficient ore to meet contract tonnages; average annual output was 685 tonnes during this period.

Nabarlek, Ranger and Mary Kathleen were the only uranium mines brought into production in Australia during the period covered by the bibliography, but a substantial number of other significant deposits were discovered and brought to various stages of development. In July 1970 three orebodies were discovered at Beverley in the Lake Frome area of South Australia; reserves were estimated at 6,700 tonnes, and environmental impact and feasibility studies were carried out. In July 1971 Noranda Australia Ltd announced the discovery of another deposit in the Alligator Rivers Region at Koongarra, south of Ranger, estimated to contain 16,600 tonnes. Later that year another find was made at Jabiluka, to the north west of Ranger; this proved to be the largest to date, and was estimated to contain 207,000 tonnes U308 (and also significant quantities of gold). Detailed environmental impact and feasibility studies were carried out for Koongarra and Jabiluka and agreements negotiated with the Aboriginal owners of the land on which they were located, but both are still awaiting federal government approval.

The first major discovery in Western Australia was made late in 1971 at Yeelirrie, south west of Wiluna. Ore reserves were estimated at 52,500 tonnes; environmental impact statements and feasibility studies were prepared, a pilot treatment plant established, and in June 1979 approval was given for development to proceed, but this decision was rescinded by the Labor government in 1983.

These discoveries, combined with the start of what was to become a very substantial rise in uranium prices and the announcement in 1974 that the United States market (previously closed to foreign uranium suppliers) would be progressively opened to uranium imports, added to the impetus for uranium exploration in Australia. A major deposit was located at Honeymoon in South Australia (nearly 16,000 tonnes); approval for its development was granted by the Commonwealth in October 1981, but the South Australian government subsequently refused to issue a production licence for the project and the Commonwealth approval was later rescinded. Many smaller orebodies were also located, for example at Ben Lomond near Townsville (uranium/molybdenum), at Lake Way near Wiluna in Western Australia, in the Ngalia and Amadeus Basins in central Australia, and at Ranger 68, 20 km from the earlier Ranger discovery.

In 1976 a very large copper/gold/uranium deposit was located at Roxby Downs in South Australia. Detailed exploration work and preliminary development work were undertaken during the early 1980s, and uranium reserves estimated at about 450,000 tonnes U308. A mining agreement was signed with the South Australian government in 1982 and a decision to proceed with development was announced in December 1985, Commonwealth approval having

been granted earlier in the year. Full-scale development work commenced in March 1986, and the first commercial shipment of yellowcake was despatched from Roxby Downs in November 1988; annual production will be approximately 2,000 tonnes.

Depressed uranium prices and government policies led to a major downturn in exploration in 1983-84, but another important find was made in December 1985 at Kintyre in the Ruddell River area of Western Australia, some 450 km south east of Port Hedland.

As a result of these discoveries, Australia now accounts for a very significant proportion (about 30 per cent) of western world low-cost uranium reserves (see Part One, Section 3). Its share of western world mine production of uranium is considerably smaller, at about 10 per cent.

To date, no further processing of uranium concentrates has occurred in Australia and no commercial nuclear power reactors have been constructed. Interest in upgrading uranium prior to export emerged very quickly after the major Northern Territory discoveries, and in the mid 1970s considerable attention was focused on the possibility of establishing domestic conversion and enrichment facilities. A number of possible sites were investigated, and detailed studies were conducted regarding the feasibility of setting up a conversion/enrichment centre in South Australia (see Part Six, Section 2). As mentioned above, the federal government had decided at one point to build a nuclear power plant but later reversed its decision. A number of state governments have also considered the possibility of establishing nuclear reactors, but none of these proposals has progressed beyond the discussion stage (see Part Six, Section 1).

Detailed information on the development of the Australian uranium industry and of individual projects can be found in the sources listed in Part One, Section 1 and in Part Nine.

Uranium Policy 1969-1987

Initially, the discovery of major uranium resources in Australia's Northern Territory generated little public controversy; uranium represented another mineral to add to the list of major discoveries made during the 1950s and 1960s. The only issue which did generate substantial public concern over the period 1970-1972 involved the ownership of QML, which was the subject of takeover speculation involving a number of different foreign companies. Foreign ownership of Australia's mineral resources was by this time a source of growing public unease, and in December 1970 the federal government acted to prevent a foreign takeover of QML.

Federal politicians of all political persuasions shared the assumption that uranium resources would be fully developed and that nuclear power plants would be constructed in Australia to utilise part of its uranium production. However, as early as 1970 concern was being expressed by the parliamentary opposition regarding the conditions under which uranium would be mined and exported, particularly in relation to domestic processing of uranium, nuclear safeguards on uranium exports and the impact of mining on Aboriginal people in the Alligator Rivers Region. Australia's Liberal/National Country Party (NCP) federal government assumed that uranium would generally be developed in a way similar to Australia's other major mineral resources, that is under the control of the private companies which discovered orebodies or were prepared to invest capital in their development; it approved export contracts for Mary Kathleen in 1970 and for Ranger and Nabarlek in 1972. However it was aware of the environmental sensitivity of the Alligator Rivers Region and in 1972 initiated an Environmental Fact-finding Study to collect base-line environmental data.

Most people writing on uranium during 1970-1972 were associated with the AAEC. This body was established in 1953 in order to develop expertise in nuclear technology, on the assumption that Australia would eventually construct nuclear power stations and, according to some of those involved, acquire nuclear weapons. It was consequently not surprising that these writers assumed, like the federal politicians, that Australia's newly-discovered uranium resources would be fully developed and partly used to fuel nuclear reactors in Australia; their major concern was with technical issues, including the measures which would be required to avoid a repeat of the environmental damage at Rum Jungle.

The Whitlam Labor government, elected in December 1972, was also committed to exploitation of Australia's uranium resources, but it believed that major policy changes were required in order to maximise the economic benefits obtained by Australia from uranium development. It sought to substantially increase Australian ownership and control of the uranium industry (partly through direct government participation in uranium exploration and development), to achieve significant increases in export prices, and to ensure local enrichment of Australian uranium. A moratorium was placed on uranium exports and on negotiation of new contracts. Guidelines were introduced which required full Australian ownership of uranium exploration and mining ventures; the AAEC was given responsibility for new uranium exploration in the Northern Territory; the Commonwealth took an equity interest, through the AAEC, in Mary Kathleen Uranium (46 per cent) and in the Ranger project (50 per cent); and negotiations commenced with Japanese interests

regarding the establishment of an enrichment plant in Australia.

The Whitlam government also expressed concern about the physical impact of uranium mining on the environment and its social impact on Aboriginal communities, and about the possibility that export of Australian uranium might contribute to nuclear proliferation and increase the likelihood of nuclear war. In December 1974 the Environment Protection (Impact of Proposals) Act 1974 was passed by federal parliament; this provided for the establishment of public inquiries in relation to the environmental impact of major development proposals, and in July 1975 the government directed that an inquiry be conducted into the proposal for development of the Ranger deposits. A commission of inquiry was established, consisting of R.W. Fox, Senior Judge of the Australian Capital Territory Supreme Court (the Presiding Commissioner), G.G. Kelleher, a civil engineer, and C.B. Kerr, Professor of Preventive and Social Medicine at the University of Sydney. The Ranger Uranium Environmental Inquiry (RUEI), often known as the Fox Inquiry or the Fox Commission, was to examine all environmental aspects of the proposed project, with 'environment' defined to include 'all aspects of the surroundings of man, whether affecting him as an individual or in his social groupings' (No.282, p1).

By the time the RUEI was established, opposition to uranium mining was growing, and groups such as the Australian Conservation Foundation (ACF) and Friends of the Earth (FOE) were pressing for a total ban on uranium exports. By 1976 a broadly-based anti-uranium movement existed and included individuals, environmental groups, several of the major Christian churches, state branches of the ALP, teachers' associations, the Doctors' Reform Group and trade unions. (Trade unions were to play an important role in the direction of the movement and in uranium policy: see Part Three, Section 9). National or state 'umbrella' groups were formed, including the Movement Against Uranium Mining (MAUM) and the Campaign Against Nuclear Energy, and a range of protest activities were organised. Other individuals, mining companies, uranium and mining industry associations, the AEEC and governments in some uranium-consuming countries pressed for an end to the moratorium on exports and contract negotiations. Both sides of the debate gained support from scientists acknowledged as experts in their fields. The efforts of pro- and anti-uranium groups to influence policy-makers and public opinion generated a significant part of the literature referred to in this bibliography.

The RUEI was conducted over a period of 18 months, heard evidence from 303 witnesses and received written submissions from scores of individuals and organisations. The transcripts of its hearings ran to 13,525 pages, and

they represent a valuable source of information for those interested in the debate over uranium policy in the mid 1970s. While it focused specifically on Ranger rather than on the Australian uranium industry as a whole, the Inquiry adopted a broad approach, dealing with general questions raised by the uranium and nuclear industries as well as specific local issues associated with the Ranger proposal.

The RUEI's First Report, published in October 1976 (see No. 282), examined the nuclear power industry and its current and likely future role in world energy supply, economic costs and benefits of exporting and of not exporting Australian uranium, hazards of the nuclear fuel cycle, environmental hazards of non-nuclear energy sources, nuclear proliferation and nuclear safeguards, and nuclear theft and sabotage.

Among its principal findings were that the hazards of mining and milling uranium and of operating nuclear power stations were, if these activities were properly regulated and controlled, 'not such as to justify a decision not to mine and sell Australian uranium'; that the nuclear power industry was unintentionally contributing to an increased risk of nuclear war and that this was the most serious hazard associated with the industry; that any development of Australian uranium mines should be strictly regulated and controlled; that policy regarding Australian uranium exports should be based on a full recognition of the hazards associated with production of nuclear power; that uranium exports should be subject to stringent safeguards agreements; that a permanent Uranium Advisory Council should be established to advise the government, and parliament, with regard to the export and use of Australian uranium; and that energy conservation and research into alternative non-nuclear energy sources should be vigorously pursued by the Australian government. Its general conclusion was that Australia should not commit itself to withholding for all time its uranium supplies, but that a delay in supplying uranium until such time as Australia was satisfied that substantial progress had been made on some of the problems associated with the nuclear industry was an option which might reasonably be followed. Finally, there should be ample time for public consideration of the Report and for debate on it, including parliamentary debate.

Both pro- and anti-uranium groups regarded these findings as providing support for their positions, further fuelling the debate on uranium policy.

The Whitlam government was removed from office in November 1975. The Liberal/NCP coalition which replaced it was generally in favour of allowing the uranium companies to dictate the pace of development, subject to appropriate safeguards and environmental requirements and the

protection of Aboriginal interests; it was opposed to direct government participation in the uranium industry, and quickly removed the AAEC from involvement in uranium exploration. Some attempt was made to hasten the completion of the RUEI but the new Prime Minister, Malcolm Fraser, insisted that no decision on uranium policy would be announced until the Inquiry had finished its work. Other senior members of the coalition, particularly the National Country Party leader and Deputy Prime Minister and Minister for National Resources, Doug Anthony, pressed for an early decision to proceed with development of new uranium mines. On receipt of the RUEI's First Report the government did announce that approval would be given for export of Mary Kathleen Uranium's production and that the government's uranium stockpile would be used to meet contracts negotiated earlier by Peko-EZ and by QML.

The government also commenced work on its nuclear safeguards policy, which was announced in May 1977. This involved careful selection of the countries to which uranium export would be permitted; and prior conclusion of bilateral agreements, designed to ensure stringent safeguards against diversion of uranium to nuclear weapons programmes, with countries wishing to import Australian uranium.

The RUEI published its Second Report in May 1977 (see No. 283). This provided background information on the Alligator Rivers Region and its Aboriginal inhabitants, and concentrated on the effects of the Ranger proposal on the Region, dealing with the impact on Aboriginal society, the physical environment, and existing economic activities, with its relationship to tourism and proposals for a national park, and with the question of Aboriginal rights over land in the Region. It also dealt with environmental monitoring and with marketing and control of Australian uranium exports, and again examined the economic costs and benefits associated with developing or not developing Ranger.

The Report concluded that the Ranger project, as proposed, should not be allowed to proceed, but that a substantially-modified proposal be approved, subject to a range of qualifications. These included a large number of specific recommendations designed to minimise the risk of adverse effects on the physical environment; the creation of a national park in the region, with substantial Aboriginal involvement in its management; granting of Aboriginal title to a number of areas of land in the Region, including the Ranger Project Area; and establishment of a comprehensive system of environmental monitoring and research, overseen by a Co-ordinating Committee representing all of the agencies involved and chaired by a Supervising Scientist.

The Report also made a number of more general recommendations regarding uranium exploitation, and economic development generally, in the Alligator Rivers Region. It concluded that Ranger and Jabiluka should not be developed simultaneously, and that Ranger should proceed first; that no other mining should be allowed in the area west of the Arnhem Land Reserve for the time being at least, and specifically that Koongarra should not be developed; that the township built to house mineworkers should be limited in size and should not include tourist accommodation; and that a deliberate and comprehensive programme be implemented to minimise the adverse social impact of uranium mining on Aborigines and to assist them in taking advantage of any opportunities associated with it. The Report recognised that substantial opposition to uranium mining existed among Aborigines in the Alligator Rivers Region, but concluded that this of itself should not be allowed to stand in the way of uranium development.

Prime Minister Fraser announced the government's decision some two months after submission of the Second Report and, according to him, its policy varied in only a few cases from the RUEI's recommendations (see No. 216A). There would be further development of uranium 'under strictly controlled conditions'; the government rejected the Second Report's recommendation that it should only permit sequential development of uranium deposits in the Alligator Rivers Region, and decided not to specify the sequence of uranium projects elsewhere in Australia. However, projects would only be permitted to proceed if they conformed with a code of operating practice which the government would formulate and with the requirements of the Environment Protection (Impact of Proposals) Act 1974; if the government was satisfied as to the acceptability of their impact on the environment and on Aboriginal people; and if the sales contracts for the uranium produced conformed with the government's nuclear safeguards policy. In practice, this was expected to delay development of Jabiluka and especially Koongarra for a number of years. A Uranium Advisory Council would be established, and a Uranium Export Authority created (later titled the Australian Uranium Export Office) which would have general powers for control and supervision of marketing, sales and commercial arrangements. The government accepted the Inquiry's recommendations regarding granting of Aboriginal land, establishment of a national park, restrictions on the size and functions of the new mining town in the Alligator Rivers Region, and implementation of measures to deal with the impact of mining on Aboriginal society.

The Prime Minister's announcement was accompanied by more detailed statements from responsible ministers on a range of specific policy issues, dealing with the economic benefits expected from uranium mining, nuclear safeguards,

impacts on Aboriginal society, environmental protection, and health and safety aspects of uranium development. It also included a range of brief background papers dealing with these issues and, in addition, with Kakadu National Park, the history of uranium development in Australia, and new bodies which would be established to administer uranium development.

The Prime Minister stated that commercial considerations had not played a determining role in shaping the government's policy and that such considerations would, on their own, not have resulted in a decision to proceed with mining. A desire to strengthen Australia's voice in the moves against proliferation of nuclear weapons and a sense of obligation to provide energy to an energy-deficient world were given as the major determinants of the government's decision to allow mining to proceed (see No. 216A).

On 10 April 1978 the government introduced enabling legislation consisting of six Bills to give effect to its uranium development policy, and these were enacted during May and June 1978. The Environment Protection (Alligator Rivers Region) Act 1978 provided for the appointment of a Supervising Scientist and the establishment of a Co-ordinating Committee and a Research Institute for the purpose of protecting the environment in the Alligator Rivers Region. The National Parks and Wildlife Conservation Amendment Act 1978 gave effect to the declaration of the Kakadu National Park. The Aboriginal Land Rights (Northern Territory) Amendment Act 1978 implemented the RUEI's recommendation on granting of Aboriginal land rights and allowed leasing of part of the land involved to the Australian National Parks and Wildlife Service (ANPWS) for inclusion in the National Park. The Atomic Energy Amendment Act 1978 enabled the AAEC to participate in the Ranger project on behalf of the Commonwealth and strengthened and clarified the legislative basis for the application of nuclear safeguards within Australia. The Environment Protection (Nuclear Codes) Act 1978 provided for the development of codes of practice designed to protect the health and safety of people and the environment from possible harmful effects of nuclear activities in Australia. The Environment Protection (Northern Territory Supreme Court) Act 1978 gave the Supreme Court of the Northern Territory power to make orders for the enforcement of environmental requirements provided under Commonwealth and Northern Territory laws.

The Northern Territory (Self-Government) Act 1978 was also passed during 1978; the Northern Territory became self-governing as from 1 July 1978, with the Commonwealth retaining control over uranium and related issues. (For discussion of relevant legislation, see Part Three, Section 6).

The public debate on uranium continued after the conclusion of the RUEI and the implementation of the government's uranium decision. In some cases it focused on the government's motivation for allowing mining to proceed, in others on specific aspects of policy implementation. For example, considerable controversy surrounded the Ranger Agreement negotiated between the Commonwealth, acting on behalf of the Ranger partners, and the Northern Land Council, representing the traditional Aboriginal land owners; the government was accused of conducting the negotiations in a way quite contrary to the spirit of the RUEI's recommendations. The impact of uranium mining on Aboriginal society also received considerable attention, particularly when substantial uranium royalties began to flow into Aboriginal communities and when the Project to Monitor the Impact of Uranium Mining on Aborigines in the Alligator Rivers Region, established by the Australian Institute of Aboriginal Studies in 1978 at the government's request, began to publish its findings (see Part Four). Considerable debate also occurred regarding the government's implementation of its safeguards policy, with its critics claiming that the policy was quickly watered down in response to commercial pressures, accusations which the government vigorously denied (see Part Eight, Section 2).

Debate continued on the likely economic benefits of uranium mining, particularly when escalating capital costs and interest rates, revision of energy demand forecasts, and growing public concern regarding safety of nuclear power plants in the industrialised countries (especially after the Three Mile Island reactor accident in 1979) led to deferral and cancellation of reactor construction, severe downward revisions of projected nuclear capacity and uranium demand and, from 1980, a steep fall in spot market uranium prices (see Part Five). The effects of uranium mining on the physical environment and on human health and safety attracted considerable attention, particularly after Ranger and Nabarlek commenced production (see Part Seven, Sections 2 and 5), as did the issue of nuclear waste disposal, partly because of the research on an alternative form of disposal (SYNROC) being carried out at the Australian National University (ANU) in Canberra (see Part Seven, Section 4). The role of Australian uranium in nuclear weapons proliferation continued to be a contentious issue (see Part Eight, Section 1).

By early 1983 Nabarlek and Ranger were operational, the Commonwealth had granted approval for development of Yeelirrie and Honeymoon, and it was expected to approve development of Koongarra, Jabiluka and Roxby Downs in the near future. This situation changed with the election of the Hawke Labor government in March 1983.

The ALP's 1977 National Conference had adopted a strong anti-uranium policy. This opposed the mining and export of uranium until the Party was satisfied that the problems of nuclear waste disposal and nuclear proliferation had been solved. It also stated that Labor would repudiate any export contracts entered into after 1977, and would close down any existing mining operations. This policy was reaffirmed at the 1979 National Conference, but by 1982 sections of the Party leadership were convinced that Labor's uranium policy represented a serious electoral liability both federally and in South Australia, where the development of Roxby Downs was a major political issue. The 1982 National Conference significantly modified the existing policy. Development of new uranium mines was still to be prohibited, but uranium exports would be permitted where uranium was mined 'incidentally' to other minerals; this could be interpreted as allowing development of Roxby Downs, which contained copper and gold as well as uranium. In addition, existing mines were now to be phased out as their contracts expired, rather than closed immediately.

Pressure for a further relaxation of uranium policy mounted after Labor's return to government in March 1983; in September 1983, after extensive debate within the Party, Caucus approved a Cabinet proposal to allow QML and ERA to negotiate new export contracts, effectively ending the commitment to phasing out existing mines, and explicitly accepted a 'three-mines' policy (i.e. Nabarlek, Ranger and Roxby Downs). All existing and future contracts were to be subject to stringent conditions to be determined by the government after consideration of a report on Australia's role in the nuclear fuel cycle, which it had asked the Australian Science and Technology Council (ASTEC) to prepare. The ban on uranium shipments to France, imposed earlier in the year because of that country's testing of nuclear weapons in the South Pacific, would continue.

The ASTEC Inquiry, Chaired by Professor R.O. Slatyer, was asked to give particular attention to three issues: nuclear safeguards, especially the effectiveness of bilateral and multilateral agreements; the opportunities for Australia to further advance the cause of nuclear non-proliferation through the conditions of its involvement in the nuclear fuel cycle; and the adequacy of existing technology for handling and disposal of nuclear waste and the ways in which Australia could further contribute to the development of safe disposal methods.

The Inquiry was commissioned in November 1983. Its Report, tabled in federal parliament on 31 May 1984 (see No. 288), reviewed the current status of the nuclear power industry, and discussed in detail the existing non-proliferation regime, safeguards operated by the International Atomic Energy Agency, Australia's bilateral safeguards agreements,

and management of nuclear waste. Some of its principal recommendations were that exports of Australian uranium should not be limited as a matter of principle; that Australia pursue a range of initiatives designed to render existing nuclear safeguards more effective, to limit the spread of nuclear weapons and to achieve a comprehensive test-ban treaty; that Australia should participate in stages of the nuclear fuel cycle in addition to uranium mining and milling, on the grounds that this would enhance its capacity to make a positive contribution to non-proliferation; and that Australia should provide encouragement for Australian participation in research and development on the disposal of high-level radioactive waste, partly through continued support for research on the SYNROC waste disposal method.

Both the conduct and recommendations of the Slatyer Inquiry caused considerable political controversy (see Part Three, Section 4). Anti-uranium groups and some political commentators claimed that its terms of reference, its composition, and the assumptions of its members inclined it to support an expanding role for Australia in the nuclear fuel cycle. An 'Independent Committee of Inquiry into Nuclear Weapons and other Consequences of Australian Uranium Mining' was established by concerned groups and individuals; this reported on the same day as the Slatyer Report was tabled, and concluded that no new uranium contracts or extension of existing contracts should be approved, and that development of enrichment facilities or storage of foreign nuclear waste should not be permitted in Australia (see No. 149). The Slatyer Report's recommendations that uranium exports should not be limited as a matter of principle and that Australia should extend its involvement in the nuclear fuel cycle were particularly controversial. Neither was accepted by the government; most of the remaining recommendations were.

The ALP's 1984 National Conference endorsed the policy adopted by Caucus in September 1983, but extensive and at times acrimonious debate preceded the decision as sections of the Party were still very strongly opposed to any export of Australian uranium. These groups were incensed when the government announced, in August 1986, the lifting of the bans on sales of uranium to France because of the loss of revenue they involved. (The government had agreed to purchase from QML shipments scheduled for France, in order to protect the company from loss of income.) The government had also, by 1986, dismantled part of the institutional apparatus established in response to the RUEI's recommendations, disbanding the Uranium Advisory Council and the Australian Uranium Export Office, and refusing to renew funding for the Project to Monitor the Social Impact of Uranium Mining.

The development of Australia's uranium industry has largely been controlled by the Commonwealth rather than the states, and state government policies receive relatively little attention in the literature (see Part Three, Section 5). Significant discoveries of uranium have not been made in Tasmania, Victoria or New South Wales. The Northern Territory and Queensland Governments have strongly favoured full and rapid development of their uranium resources, and have been highly critical of the Commonwealth's role in preventing this. Western Australian governments have generally been supportive of uranium developments in their state. South Australian governments, Liberal and Labor, have supported the development of Roxby Downs, but in March 1983 the Labor government decided not to grant a production licence for the Honeymoon uranium deposit because of unresolved problems associated with the nuclear industry, the limited economic benefits expected to flow from the project, and because of public disquiet regarding the environmental impact of the in situ leaching process to be used at Honeymoon.

During 1987 and 1988 pro-uranium groups within the ALP continued to press for a further relaxation of uranium policy to allow development of additional mines. The issue was due for debate at the 1988 National Conference, but was diffused by the announcement that a review committee would be established to examine the Party's uranium policy. In the meantime, the 'three mines' policy stands, though only two projects are now (January 1989) producing uranium.

PART ONE

THE AUSTRALIAN URANIUM INDUSTRY

General

1. ANON., 1972. AUSTRALIA PREPARES FOR RENEWAL OF URANIUM PRODUCTION, ENERGY DIGEST, 1, 1, p23-24.
2. ANON., 1974. PROSPECTS FOR AUSTRALIAN URANIUM, MINING MAGAZINE, JULY, p11-23.

Discusses the general outlook for the Australian uranium industry and outlines the principal Australian uranium discoveries. Argues that the government's policy of attempting to restrict new minerals development to Australian-owned companies has particularly serious implications for the uranium industry in Australia. Reviews investigations by the AAEC into the possibility of enriching uranium in Australia.

3. ANON., 1974. URANIUM - A FORCE FOR THE FUTURE, AUSTRALIAN MINING, 71, 4, p13-28.

Presents background information on the uranium industry in Australia, and outlines the status of Australian uranium projects. Provides data on world uranium mining and yellowcake production including details of the United States, Canadian and South African industries, and reviews current uranium consumption and future requirements.

4. ANON., 1975. AUSTRALIA - A QUARRY FOR URANIUM HUNTERS, BANK OF NEW SOUTH WALES REVIEW, NO. 14, APRIL, p1-9.

Discusses the degree to which Australian uranium should be upgraded before export. Reviews the history of the Australian uranium industry and government uranium policy and involvement in the industry, and outlines the extent of known reserves and the potential for export.

5. ANON., 1975. DEVELOPMENT OF URANIUM RESOURCES IN AUSTRALIA, FRANCE-AUSTRALIE, NO. 352, JUNE, p14-20.

Summarises the development of Australia's uranium resources. Reviews the history of uranium development from 1944 onwards, estimates the extent of deposits, and discusses Commonwealth involvement in the mining

industry (particularly the functional role of the AAEC) and the effects of Aboriginal land rights on mining ventures. Considers the economics of Australian uranium reserves and to what extent Australia should upgrade its uranium before export. Outlines the upgrading processes, and argues that although fuel fabrication is not yet relevant to Australia and there are some obvious disadvantages associated with enrichment, the size of its uranium deposits gives Australia a strong bargaining point for selling enriched uranium. Predicts considerable financial gain from establishment of an enrichment industry. Provides reasons why uranium enrichment ventures would need to be part overseas-owned, and claims that economic factors should be the major determinant of whether a plant is established in Australia.

6. ANON., 1977. AUSTRALIA'S URANIUM RESOURCES - MINING, ENGINEERING AND ENERGY ASPECTS, AUSTRALIAN PROCESS ENGINEERING, VOL. 5, AUGUST, p21-22.
7. ANON., 1977. URANIUM, A \$30 BILLION BURIED TREASURE, THE BULLETIN, 22 JANUARY, p63-66.
8. ANON., 1977. URANIUM MINING IN AUSTRALIA: DREAMS AND REALITY, MINING ENGINEERING, 29, 1, p20-25.

Briefly discusses the extent of world, United States and Australian uranium reserves and comments on potential production levels and prices. Provides information on the Jabiluka, Ranger, Yeelirrie, Koongarra, Nabarlek and Mary Kathleen projects, discussing geology, exploration activity, planned or existing mining and milling operations and current status. Notes that although MKU Ltd has government permission to mine, process and sell uranium, it provides a good target for anti-uranium groups as the only entity currently producing uranium in Australia.

9. ANON., 1980. URANIUM, AUSTRALIAN MINERAL INDUSTRY QUARTERLY, 33, 2, p57, 67, 89.
10. ANON., 1980. URANIUM IN AUSTRALIA, A BRIEF HISTORY, AUSTRALIAN MINING, 72, 2, p31-32.
11. ALFREDSON, P.G., 1981. STATUS OF URANIUM AND NUCLEAR ENERGY IN AUSTRALIA, ENERGY PAPER NO. 3, SPECIAL PUBLICATION OF THE INSTITUTION OF ENGINEERS, AUSTRALIA, 14p.

Outlines developments relating to the nuclear fuel cycle, both internationally and in Australia, over the period 1977-1980. Notes downward revisions of

estimates regarding future nuclear power growth, and discusses developments in the areas of uranium resources, production and markets, conversion and enrichment, reprocessing of spent fuel, and disposal of high-level wastes. Reviews the status of major Australian uranium projects, and discusses the possibility of Australian involvement in other stages of the nuclear fuel cycle, recommending that studies aimed at assessing the desirability of greater involvement, especially in enrichment, power generation and waste disposal, should continue.

12. AUSTRALIAN ATOMIC ENERGY COMMISSION, 1980. QUESTIONS AND ANSWERS ON THE NUCLEAR INDUSTRY, ATOMIC ENERGY, OCTOBER, p13-21.

Provides information on world and Australian uranium resources and production (including details of Australian deposits and mining ventures), uranium prices, use of Australian uranium, and expenditure on exploration for Australian uranium.

13. BARNETT, D.W. AND HEMPHILL, J.P., 1983. THE MINERALS INDUSTRY IN AUSTRALIA 1970-1980 - A PATTERN FOR GROWTH, DEPARTMENT OF RESOURCES AND ENERGY, CANBERRA, CHAPTER 15, URANIUM, p324-39.

Provides a summary history of uranium mining in Australia and reviews world and Australian uranium resources, giving reserve estimates and ownership details for all major Australian deposits as of October 1982. Briefly discusses the possibility of establishing uranium processing facilities, infrastructure support provision for uranium mines, and federal government policy towards the industry.

14. BATTEY, G.C. AND HARDY, C.J., 1981. URANIUM RESOURCES, EXPLORATION AND PRODUCTION IN AUSTRALIA, 3RD PACIFIC BASIN CONFERENCE, ACAPULCO, MEXICO, FEBRUARY 1981, TRANSACTIONS OF THE AMERICAN NUCLEAR SOCIETY, VOL. 36, p7-14.

15. BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS, 'URANIUM', IN AUSTRALIAN MINERAL INDUSTRY ANNUAL REVIEW, AGPS, CANBERRA, ANNUAL.

Represents a basic source of information on the Australian uranium industry. Provides details on Australian mine production of uranium by project, development of any new projects and of ore reserves, current uranium reserves and resources in Australia, uranium exploration, changes in project ownership, contract negotiations, and uranium prices received by

Australian producers. Contains a review of the world industry, providing information on developments in uranium processing and nuclear energy, current and projected uranium production and consumption, and developments in the national uranium industries of major producing countries.

16. CHAPMAN, C., 1981. SECOND CHANCE FOR URANIUM, AUSTRALIAN BUSINESS, 13 AUGUST, p45-48.

Assesses future prospects for uranium mining and processing in Australia. Pressure from environmental groups, official opposition from the ACTU, and depressed uranium markets militate against rapid development of Australia's substantial uranium reserves. On the other hand ALP leaders Hawke and Hayden favour mining under appropriate safeguards while the closure of high cost United States mines could substantially improve market prospects. Discusses some major Australian uranium projects, and notes that the outcome of talks between Aboriginal land owners and the largest potential producer, Pancontinental, may provide an important indication of the Australian industry's prospects.

17. CLASEN, D., ERTLE, D.H.J. AND KNEUPER, G., 1980. THE PRESENT STATE OF AUSTRALIA'S URANIUM MINING INDUSTRY, GLUCKAUF [ESSEN, WEST GERMANY], 116, 20, p419-422.

Discusses the present state of Australia's uranium mining industry in terms of reserves, mining capacity, exploration companies, types of deposits, demand, price trends and the legal and political context.

18. COGHILL, I., 1972. AUSTRALIAN MINERAL WEALTH, SORRETT PUBLICATIONS PTY LTD., MELBOURNE, CHAPTER 14 - URANIUM, p184-189.
19. CONYBEARE, C.E.B., 1972. PETROLEUM, COAL AND URANIUM: A CASE STUDY IN PRODUCTION, TECHNOLOGY AND CONSUMPTION, IN SINDEN, J.A. (ED), THE NATURAL RESOURCES OF AUSTRALIA: PROSPECTS AND PROBLEMS FOR DEVELOPMENT, ANGUS AND ROBERTSON, SYDNEY, p143-162.
20. DEPARTMENT OF TRADE AND RESOURCES, 1983. URANIUM - RESOURCES DEVELOPMENT AND AVAILABILITY, IN INTERNATIONAL ATOMIC ENERGY AGENCY, NUCLEAR POWER EXPERIENCE, PROCEEDINGS OF AN INTERNATIONAL CONFERENCE, 13-17 SEPTEMBER 1982, VIENNA, VOL. 3: NUCLEAR FUEL CYCLE, IAEA, VIENNA, p375-384.
21. DERRICK, S., McDONALD, D. AND ROSENDALE, P., 1981. THE DEVELOPMENT OF ENERGY RESOURCES IN AUSTRALIA,

1981 TO 1990, AUSTRALIAN ECONOMIC REVIEW, 3RD QUARTER, p13-55.

Outlines the development of Australian uranium resources. Reviews the world nuclear industry and uranium production and demand, and questions expansion of the Australian uranium industry against this background. Outlines the progress of Australian projects in the face of issues such as Aboriginal land rights, environmental protection and community opposition to uranium mining, and makes some tentative forecasts for investment and exports.

22. DRIESSEN, A., 1980. URANIUM, AUSTRALIAN MINERAL INDUSTRY QUARTERLY, 32, 4, p131-132.
23. DRIESSEN, A., ET AL., 1981. FORECAST TRENDS OF AUSTRALIAN MINERAL PRODUCTION TO THE YEAR 2000, IN PAPERS, AUS.I.M.M. CONFERENCE SERIES 10, SYDNEY CONFERENCE, JULY 1981, p141-153.

Reviews and tabulates data for actual and potential production of Australia's 'more important' minerals, including uranium. Outlines production figures for the Ranger and Nabarlek uranium mines, and forecasts for Yeelirrie, Jabiluka, Honeymoon, Beverley, Koongarra, and Ben Lomond.

24. DUNCAN, I.J., 1979. AUSTRALIA'S URANIUM AND THE WORLD'S NUCLEAR INDUSTRY, IN PAPERS, AUS.I.M.M. CONFERENCE, WESTERN AUSTRALIA, AUGUST 1979, p237-246.

Considers the Australian uranium industry's future development from a world perspective, taking into account both normal commercial parameters and those peculiar to the nuclear industry. Briefly outlines the various types of commercially exploitable uranium ore bodies throughout the world, reviews the current state of exploration, compares Australian and world uranium reserves, and identifies and examines the factors which influence uranium supply and demand. Endorses the Fraser government's optimism regarding 'flow-on' benefits to Australia's economy from a domestic uranium processing industry. Warns against delay in expansion of Australia's uranium industry, and claims expansion is needed to meet predicted world supply shortfalls in the 1980s. States that mining companies fully accept the importance of applying stringent safeguards to Australia's uranium exports. Appendices deal briefly with technological and economic aspects of uranium conversion and enrichment.

25. DUNCAN, I.J., 1981. AUSTRALIA'S URANIUM AND THE WORLD'S NUCLEAR INDUSTRY, IN PROCEEDINGS OF 51ST ANZAAS CONFERENCE, 15 MAY 1981, BRISBANE, 16p, mf.

Similar to previous entry, except that the data has been updated.

26. ERSKINE, D., ET AL., 1983. LABOR'S DILEMMA: POLICY VS PROFIT?, WEEKEND AUSTRALIAN, 5-6 NOVEMBER, p16, 18-19.

Discusses uranium exploration and development work carried out in Australia during the 1970s and the early 1980s, much of which has not reached fruition, mainly because of the Labor government's uranium policy. Outlines expenditure on exploration since 1975 and current exploration activity, and provides a profile of all major uranium projects and of the uranium policies of relevant state governments. A table provides figures for each project on money spent, planned investment, ore reserves, potential annual production and potential employment.

27. FREEMAN, P., 1983. THE MINERS WHO NEVER SAY DIE, SYDNEY MORNING HERALD, 27 APRIL, p7.

Observes that despite world recession, a slump in uranium prices, scaling down of planned nuclear capacity, strong opposition from the environmental lobby, and the recent election of a Labor government, the Australian uranium industry is still 'fighting', as evidenced by statements by Pancontinental's Tony Grey. Speculates about the future of the uranium industry under a new Labor government, reviews conflicting claims about future demand for uranium and current exploration ventures, and cites Esso's pull out from Yeelirrie as a portent of Australia's uranium prospects.

28. GREY, A.J., 1976. AUSTRALIAN URANIUM - WILL IT EVER BECOME AVAILABLE?, QUEENSLAND GOVERNMENT MINING JOURNAL, 77, 898, p332-336.

Presents a short historical review of the Australian uranium industry. Compares and contrasts the policies of the Whitlam and Fraser governments towards development of the uranium industry. Gives details of Australian uranium reserves, and discusses production prospects and the timing of uranium developments with respect to present government policy. Identifies and comments on groups which oppose uranium mining, for example the Australian Conservation Foundation, Friends of the Earth and some trade unions. Argues that

Australia should and can play a significant role as a reliable supplier of high grade uranium.

29. GREY, A.J., 1978. URANIUM ON THE MOVE? [ADDRESS TO THE SECURITIES INSTITUTE OF AUSTRALIA, QUEENSLAND DIVISION], JASSA, NO. 1, MARCH, p3-7.

Reviews the current 'frustrated' state of the Australian uranium industry from a mining company executive's point of view, and claims further delay would prove economically costly to the industry and the nation. Briefly considers progress made by the various administrative bodies created in the wake of the decision to develop Australian uranium, and the effectiveness of bureaucratic processes which evolved in response to that decision. Addresses trade union concerns about nuclear industry development by outlining technology regarded as safe for nuclear waste disposal, and by discounting fears about nuclear power industry 'slippages' leading to a decrease in uranium demand, citing letters from interested consumer nations as evidence of a demand for Australian uranium. Provides a rationale for rapid and immediate development of Australia's uranium industry.

30. GREY, A.J., 1984. HOW AUSTRALIA MISSED THE URANIUM BOAT, IN PAPERS IN NUCLEAR SCIENCE AND TECHNOLOGY NO 84/1, AUSTRALIAN NUCLEAR ASSOCIATION, SUTHERLAND, NSW, 17p.

Traces the history of the uranium industry over the last fifteen years, comments on its current state claims that because Australia's 'political paralysis' allowed other countries to continue developing their uranium reserves at the expense of Australia's deposits, Australia has missed the boat on uranium development. Presents a number of maps, figures and tables in support of the author's claims.

31. HAMPSON, D.C., 1980. MAJOR DEVELOPMENTS FOR THE INDUSTRY IN 1980, MINING REVIEW, NOVEMBER, p28-30.
32. LIDDY, J.C. 1972. THE URANIUM POTENTIAL OF AUSTRALIA, AUSTRALIAN MINING, 64, 5, p24-33.

Describes the nature of uranium and the types of geological formations and commercial uranium minerals in which it is mainly found. Discusses the uranium deposits which have been mined in Australia (the Darwin-Katherine area of the Northern Territory, Mary Kathleen in Queensland and Radium Hill in South Australia), and details the deposits found in the Rum Jungle and Alligator Rivers localities in the Northern

Territory, the Cloncurry-Mt Isa area of North West Queensland, Radium Hill and Mount Painter in South Australia, and Yeelirrie and other smaller Western Australia deposits. Briefly mentions known uranium occurrences in New South Wales, Victoria and Tasmania which, it is reported, are not considered economically significant.

33. LIDDY, J.C., 1978. AUSTRALIAN URANIUM RESERVES: THEIR INFLUENCE ON WORLD ENERGY CRISIS, PART 1, AUSTRALIAN MINING, APRIL, p18.

In the first of two articles on Australian uranium the author reviews alternative energy sources and concludes that the world energy deficit will have to be met by nuclear power at least until the year 2000. Argues that local enrichment of Australian uranium is both economically and socially desirable and popularly acceptable, whilst acknowledging two major issues of public concern (possible use of plutonium for nuclear weapons and safety procedures at all stages of the nuclear fuel cycle). Reviews the non-communist world's potential nuclear capacity and projected uranium requirements up to the year 2000. Describes in detail uranium exploration methods and various types of deposits (primary, sedimentary and oxidised) and their formation. Geological structures likely to be rich in uranium are identified, including areas in Australia.

34. LIDDY, J.C., 1978. AUSTRALIAN URANIUM RESERVES: THEIR INFLUENCE ON WORLD ENERGY CRISIS, PART 2, AUSTRALIAN MINING, MAY, p18-19, 21-23.

In this, the second of two articles on Australian uranium reserves, the author continues to describe and explain the geological structures in which uranium deposits are found in the NT, and makes a similar assessment for NW and NE Queensland, South Australia and Western Australia. Bearing in mind the country's known uranium reserves and probability of further discoveries, recommends the establishment of enrichment facilities in Australia.

35. MACLELLAN, N., 1980. URANIUM: THE COMPANIES, BOWYANG, 4, SEPT-OCT, p5-41.

Briefly discusses the level of foreign investment in Australian mining, and the impact of foreign control on federal and state government policies. Reviews the history of uranium mining in Australia, then examines major uranium projects individually, providing information on ownership and on the activities and corporate links of the firms involved, on ore reserves,

project funding, uranium contracts and marketing arrangements. Discusses attempts by the uranium mining companies to influence government policies, the role played in this attempt by the Uranium Producers Forum (UPF), and the conflicts between specific corporate interests which contributed to the UPF's disbandment. Reviews the application of the federal government's foreign investment guidelines to the uranium industry.

36. MANN, A.W., 1978. SEDIMENTARY DEPOSIT MINING, IN RUMMERY, R.A. AND HOWES, K.M.W. (EDS), MANAGEMENT OF LANDS AFFECTED BY MINING, PROCEEDINGS OF A WORKSHOP ORGANISED BY THE CSIRO DIVISION OF LAND RESOURCES MANAGEMENT AND MINERALOGY, KALGOORLIE, W.A., p98-105.

Discusses some of the factors associated with the mining of sedimentary uranium deposits, by brief reference to relevant United States deposits and by extrapolation to the areas in Australia where similar deposits are known or likely to occur. Examines in detail the possible methods and effects of mining uranium in calcrete-type deposits which are of considerable importance in Western Australia.

37. MCKAY, A.D., 1983. URANIUM, AUSTRALIAN MINERAL INDUSTRY QUARTERLY, 35, 4, p141, 144.
38. MILNE, J., 1980. URANIUM TO FUEL THE WORLD'S REACTORS, AUSTRALIA NOW, 8, 2, p11-14.

Briefly discusses Australia's uranium resources, uranium production at Mary Kathleen, projections for the other 'development approved' mining ventures at Ranger, Nabarlek and Yeelirrie, and prospects for those discoveries still awaiting government approval including Jabiluka, Koongarra, Roxby Downs, and Beverley. Argues that despite isolated locations and the high cost of labour, Australian uranium production costs should compare favourably with those overseas because of high ore grades. Notes that while Labor Party policy at state and federal level opposes mining and export of uranium until satisfactory safeguards are achieved, the Fraser government supports the development of nuclear energy as an alternative source of power and has announced feasibility studies for uranium enrichment in Australia. Reports assurances by the Australian government that it will have 'proper knowledge, oversight and control' of arrangements under which Australia's uranium is exported.

39. NEFF, T., 1982. AUSTRALIA'S URANIUM - FINAL REPORT, INTERNATIONAL ENERGY STUDIES PROGRAM, BENDIX FIELD

ENGINEERING CORPORATION, GRAND JUNCTION, COLORADO,
MARCH 1982, 56p.

Outlines the historical role of Australia in the international uranium trade. Reviews the current Australian uranium policy environment referring to the following aspects: nuclear safeguards agreements; environmental protection; Aboriginal interests; foreign participation and equity requirements; developmental approval; export conditions; royalties and taxes; processing and value added; and political differences and union opposition. Analyses the structure of the Australian uranium industry, and provides information on all major uranium projects and a detailed analysis of Ranger and Nabarlek which covers mining and milling operations, ownership, financing and uranium contracts (1977-1991 for Nabarlek, 1978-1996 for Ranger). Reviews Australia's uranium export commitments and production plans, and analyses Australia's relationship to the world uranium market and Australian government policy on export floor prices in the context of a weakening world demand for uranium.

40. OECD NUCLEAR ENERGY AGENCY (INTERNATIONAL ATOMIC ENERGY AGENCY), URANIUM: RESOURCES, PRODUCTION AND DEMAND, ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT, PARIS, 1973, 1976, 1977, 1979, 1982, 1983, 1986.

Provides information on western world uranium resources, divided by degree of geological certainty ('Reasonably Assured Resources', 'Estimated Additional Resources', 'Undiscovered Resources') and by estimated cost of recovery. Analyses exploration activities and expenditures during recent years, and provides data on current and recent western world uranium production and consumption. Estimates future production capability and future western world uranium requirements, and analyses the current and likely future supply/demand situation. Provides a country by country review of relevant developments; the Australian section outlines recent events and current activity in uranium exploration and development, provides estimates of uranium resources, presents data on uranium production and on estimated future production capability, and discusses national policies relating to uranium.

41. OWEN, A.D., 1984. THE WORLD URANIUM INDUSTRY, RAW MATERIALS REPORT, 2, 4, p6-23.

Contains a section on Australia which provides a brief history of the uranium mining industry and a review of

its current status. Statistical tables provide information on ownership and reserves of major Australian uranium deposits, on total uranium reserves, and on forecast production to the year 1992.

42. POTTER PARTNERS, 1977. THE AUSTRALIAN URANIUM INDUSTRY, MELBOURNE, 44p.

Assesses the prospects for share investment in the Australian uranium industry, assuming a go-ahead from the Ranger Inquiry for sequential development with immediate approval only for Ranger and Nabarlek. Provides background information on Australia's major uranium deposits and on the development of federal government uranium policy, and assesses future markets for Australian uranium. Undertakes individual assessments of Ranger, Nabarlek, Yeelirrie and Pancontinental, providing information on ore reserves, stage of development, contracts, ownership and likely profitability. Discusses a number of smaller projects more briefly.

43. RESOURCE INFORMATION UNIT LTD., 'URANIUM', IN REGISTER OF AUSTRALIAN MINING, RESOURCE INFORMATION UNIT LTD., SYDNEY, ANNUAL.

Reviews developments in the uranium policies of state and federal governments during the previous year, provides information on Australian and world resources and reserves, and analyses trends in world production, demand, markets and prices. Provides information on all uranium mines, projects and known deposits (35 in 1987), indicating location, ownership, reserves (where known), and production (where appropriate), and commenting on the status of the project or deposit and on any significant developments which have occurred in relation to it during the previous year.

44. RYAN, G.R., 1977. URANIUM IN AUSTRALIA, IN JONES, M.J. (ED), GEOLOGY, MINING AND EXTRACTIVE PROCESSING OF URANIUM, INTERNATIONAL SYMPOSIUM CO-SPONSORED BY THE INSTITUTION OF MINING AND METALLURGY AND THE COMMISSION OF THE EUROPEAN COMMUNITIES, LONDON, p24-42.

Traces the history of uranium mining in Australia. Details the location, geology and extent of known Australian uranium deposits. Reviews uranium exploration methods and the potential for further Australian discoveries. Briefly discusses political and public constraints on mining and export of uranium in Australia, but believes that there is potential for foreign investment in the Australian uranium industry

within the constraints imposed by the Australian government.

45. SCOTT, W.E., 1979. AUSTRALIA STEPS UP URANIUM MINING PLANS, ENERGY INTERNATIONAL 16, 5, p37-39.
46. SILVER, J.M., 1982. THE POTENTIAL FOR AN AUSTRALIAN URANIUM INDUSTRY, MINERAL ECONOMICS OCCASIONAL PAPER NUMBER 1, MACQUARIE UNIVERSITY, 147p.

Considers the potential for an integrated Australian uranium industry to the year 2000. Concludes that world installed nuclear capacity will grow by about 2.5 times over this period, a lower rate than suggested by 'official' estimates. Outlines the nuclear fuel cycle and indicates the added value which occurs at each step of the cycle. Estimates future world uranium requirements, discusses world uranium resources, production capacity and costs, uranium pricing and contracts and the likely supply-demand situation, and assesses the potential market for Australian uranium (estimated at 12,000 tonnes U in 1990 and 15,000 tonnes U in 1995). Discusses uranium conversion and enrichment, reviewing production capacity, costs, prices and the likely supply-demand situation. Considers the possibility of establishing conversion and enrichment facilities in Australia, and concludes that it could be supplying enrichment services of 2.5 million SWU/year by 2000 (or some 6 per cent of estimated world demand). Discusses requirements, production capacity, costs and likely supply-demand for nuclear fuel fabrication and spent fuel reprocessing, taking the view that neither is likely to occur in Australia in the near future. Reviews the possibility of Australia becoming a depository for nuclear wastes and states that it could provide appropriate sites given community acceptance of the safety of waste disposal. Analyses the impact of the potential uranium industry on the Australian economy, dealing with imports, exports, capital flow, linkages and employment, and concludes that continued delays in the development of its uranium industry will impose substantial economic costs on Australia.

47. SOUTH, S.A., 1972. URANIUM MINING INDUSTRY REVIEW 1971/72, AAEC, SYDNEY, 24p.

Presents a compilation of facts and figures on the current status of the Australian uranium mining industry, reviews uranium exploration by states and by company, and outlines international developments during the same period.

48. URANIUM INFORMATION CENTRE [1986]. AUSTRALIA'S URANIUM, UIC, MELBOURNE, 4p.

Presents a brief background to uranium mining in Australia, describes the techniques of mining and milling and control of wastes, and outlines the measures taken to protect the health of uranium mineworkers. Summarises federal government policy on uranium mining and export and argues in favour of the effectiveness of Australian nuclear safeguards. Lists legislation which deals with a wide range of issues affecting uranium mining.

49. WARNER, R.K., 1976. THE AUSTRALIAN URANIUM INDUSTRY, (THE SECOND ESSINGTON LEWIS MEMORIAL LECTURE), ATOMIC ENERGY IN AUSTRALIA, 19, 2, p19-31.

Claims that the basis for a major uranium industry in Australia has been established by recent discoveries of significant uranium resources, argues that development of mining and milling projects should take priority over exploration, and predicts profitable export earnings potential if Australia acts soon. Presents an historical review of the Australian uranium industry, describes the properties of uranium and details the nuclear fuel cycle, reviews world supply, demand and prices, and discusses the market prospects for Australian uranium. Considers the future development of the Australian uranium industry, including the possibility of enrichment.

50. WARNER, R.K., 1984. THE CASE FOR ... THE AUSTRALIAN URANIUM INDUSTRY [REVISED SECOND ESSINGTON LEWIS MEMORIAL LECTURE, 1976], AUSTRALIAN FEDERAL POLICE JOURNAL, 6,3, p117-135.

Extract from a paper originally published in 1976 (see previous entry).

Cross References

39, 96, 142, 149, 166, 167, 190, 218, 225, 232, 250, 547, 581

Uranium Industry, Individual States

51. ANON., 1973. URANIUM MINING IN THE NT, AUSTRALIAN MINING, 65, 9, p40-41.
52. ANON., 1979. URANIUM IN SOUTH AUSTRALIA, MINERAL INDUSTRY QUARTERLY, SA, NO. 15, SEPTEMBER, p7-13.

Provides details of South Australia's principal uranium deposits, including information on reserves, ownership and current development status. Briefly outlines South Australian government policy, which favours establishment of both uranium mining and enrichment facilities.

53. BATH, L.J., FARTHING, J.W. AND WARNER, R.K., 1980. DEVELOPMENTS OF THE ALLIGATOR RIVERS URANIUM DEPOSITS, ATOMIC ENERGY IN AUSTRALIA, 23, 1, p.12-28.

Reviews the history of uranium exploration in the Northern Territory, and describes the geology and uranium resources of the Alligator Rivers Region. Briefly mentions Kakadu National Park and Aboriginal issues as they affect uranium mining. Reviews the status of mining approval and outlines proposed mining and milling techniques for Ranger, Nabarlek, Jabiluka and Koongarra. Discusses proposals for development of mining infrastructure and services, and measures to protect the environment and mineworkers' health.

54. CARTER, J.D., 1979. URANIUM, IN PRIDDER, R. (ED), MINING IN WESTERN AUSTRALIA, UNIVERSITY OF WESTERN AUSTRALIA PRESS, PERTH, p160-166.

Outlines some characteristics of uranium, types of uranium deposits, and uranium's radioactive properties which have contributed to the success of radiometric survey techniques in Western Australia. Reviews the history of uranium exploration in Western Australia and provides details of the Yeelirrie deposit.

55. ELLISTON, J.N., 1978. DEVELOPING THE NORTHERN TERRITORY URANIUM DEPOSITS INTO AUSTRALIA'S LARGEST MINERAL ENERGY RESOURCE, IN PHILLIP, G.M. AND WILLIAMS, K.L. (EDS), AUSTRALIAN MINERAL ENERGY RESOURCES: ASSESSMENT AND POTENTIAL, [EARTH RESOURCES FOUNDATION], SYDNEY, p127-138.

Critically reviews the factors responsible for the delays in uranium exploration, mining and export,

outlines the history and techniques of uranium exploration, criticises the government's lack of provision of incentives to explore and mine, and argues in favour of uranium and nuclear energy.

56. KIRKWOOD, D., 1973. URANIUM GIANT STIRS, PARTS 1-5. AUSTRALIAN FINANCIAL REVIEW, 16, 17, 18, 19, 20 JULY.

This series of articles reviews various aspects of exploration and mining in the NT's uranium province. Reviews initial exploration and estimates of uranium reserves at Ranger, Jabiluka, Koongarra and Nabarlek, and the significance of their proximity to Aboriginal sacred sites and areas of great natural beauty. Describes some of the area's wildlife and argues that water buffalo and tourists pose more of a threat to the environment than uranium mining does. Discusses the interaction between Aboriginal communities in the region and the Oenpelli mission and the social and cultural impact of European contact through employment opportunities and the mining township, and suggests that such contact could lead to a more integrated society without loss of cultural identity. Reviews NT mining lease procedures and exploration techniques for locating uranium deposits. Reports that technical and financial aspects of developing uranium mining in the NT do not pose any intractable problems, outlines proposed measures for containing radioactive tailings, and examines the government's involvement in the projects. Notes the concern of Rex Connor, Minister for Minerals and Energy, about achieving the proper price for uranium and over-exploiting reserves for short-term gain.

57. WENTWORTH, W.C., 1978. THE ECONOMICS OF URANIUM, SYDNEY MORNING HERALD, 3, 4, 5, 8, 15 MAY.

In a series of five articles, the author examines in general terms the implications of the NT uranium deposits, reviews the uranium potential of the Alligator Rivers Region, argues uranium's value for the NT's economic development, discusses the effect of Aboriginal land claims on uranium exploitation, and considers the various obstacles blocking uranium mining in the NT.

Cross References

15, 63, 67, 203, 217, 233, 313, 374, 467, 479, 537, 549, 600, 617, 618, 637, 838, 843

Uranium Resources

58. ANON., 1980. URANIUM MINING IN AUSTRALIA, AUSTRALIAN STOCK EXCHANGE JOURNAL, VOL. 7, SEPTEMBER, p17-21.

Gives the geographic location of known uranium reserves by state and details the interests of twelve major publicly listed companies involved in uranium mining and exploration. Australia is estimated to have 25 per cent of the western world's known reserves but the economic outlook for uranium is not believed to be as promising as it was a few years ago.

59. BATTEY, G.C., 1978. AUSTRALIA'S URANIUM RESOURCES, ATOMIC ENERGY IN AUSTRALIA, 21, 4, p2-9.

Briefly reviews the history of uranium exploration in Australia, outlines the extent of world uranium deposits, describes the known Australian deposits, and reviews the level of Australian uranium production. States that the potential of the Alligator Rivers Region far exceeds that of any other location either in Australia or overseas.

60. BATTEY, G.C., 1983. REVIEW OF URANIUM INDUSTRY IN AUSTRALIA DURING 1982, ATOMIC ENERGY IN AUSTRALIA, 26, 1/2, p2-6.

Describes the procedure adopted for estimating and publicising Australian uranium resources, outlines their extent, and makes a comparison with world resources. Reviews Australian uranium production for 1982 and compares domestic and world levels of exploration over the last few years. Reviews the more significant Australian uranium discoveries to date.

61. MILES, G.L., SOUTH, S.A. AND WARNER, R.K., 1972. URANIUM RESERVES AND PROSPECTS FOR A NUCLEAR FUEL INDUSTRY, IN THE NEED FOR ATOMIC POWER IN AUSTRALIA AND NEW ZEALAND, SYMPOSIUM, 44TH ANZAAS CONGRESS, 17 AUGUST 1972, 34p.

Describes Australia's uranium resources and the prospects for upgrading beyond the minesite production of yellowcake. Outlines world uranium reserves and demand, and argues that the level of uranium exploration activity must increase to meet projected uranium requirements. Briefly discusses uranium exploration techniques and describes uranium deposits in the Alligator Rivers Region of the Northern Territory, the Mary Kathleen area in Queensland, Mt Painter and Radium Hill in South Australia and a number

of sites in Western Australia. Reviews the extent of Australia's uranium reserves, compares them with other domestic energy sources, and claims that they appear sufficient to permit extensive export without prejudicing domestic requirements. Claims that the present government policy on uranium export provides a satisfactory basis for mining companies to undertake further exploration and enter into export contracts when reserves are fully delineated. Previews mining and milling techniques, describes the production of hexafluoride and considers the factors which might influence the planning of an Australian conversion plant. Outlines the various enrichment technologies, reviews world enrichment requirements and claims that construction of a uranium enrichment plant in Australia would significantly increase potential export income. Argues that in terms of value added, fuel fabrication and fuel reprocessing would seem attractive long-term prospects.

62. SILVER, J.M. AND WRIGHT, W.J., 1975. URANIUM RESOURCES AND REQUIREMENTS, AAEC, SYDNEY, 11p.

Assesses the adequacy of world uranium resources in the light of expected demand from the nuclear power industry. Provides figures on uranium resources (drawn from OECD/NEA data), and projects uranium requirements to the year 2000. [The 'low' estimate for 1985 is 100,000 tonnes U, compared to actual consumption in 1985 of some 40,000 tonnes U.] Concludes that sufficient uranium is available from conventional known resources to meet these requirements. A decision by Australia not to export uranium would have only a marginal impact on resource availability, but would lead to loss of significant potential economic benefits. Assuming that Australia captured 15-20 per cent of the world market in 1985, these benefits could include export earnings of \$3,000 million and wage payments of \$100 million per annum (1985 prices), and direct and indirect employment of about 4,600 people.

Cross References

12, 13, 15, 32, 40, 41, 43, 220, 225, 541, 661

Uranium Exploration

63. ANON., 1972. THE URANIUM SEARCH IN AUSTRALIA, AUSTRALIAN MINING, 64, 5, p40-44.

Gives a brief historical background to uranium exploration in Australia and outlines uranium discoveries, current exploration activity and mining company involvement in Queensland, the NT, Western Australia and South Australia.

64. ANNABELL, R., 1971. THE URANIUM HUNTERS, RIGBY LIMITED, ADELAIDE, 173p.

Describes some of the characters involved in the first uranium boom in the NT (1950-60), and outlines their prospecting ventures.

65. BATTEY, G.C. AND HAWKINS, B.W., 1978. URANIUM EXPLORATION IN AUSTRALIA, ATOMIC ENERGY IN AUSTRALIA, VOL. 21, JANUARY, p26-31.

Reviews the history of uranium exploration in Australia in two distinct phases, 1944-61 and 1966-76. Outlines the most significant Australian uranium discoveries since 1966, reviews exploration methods, and concludes that increasing costs of modern uranium exploration techniques together with removal of government rewards for uranium discoveries has led to the replacement of individual prospectors by major mining companies.

66. BROOKS, J.H., 1972. URANIUM EXPLORATION IN QUEENSLAND, 1967-71, GEOLOGICAL SURVEY OF QUEENSLAND, SURVEY REPORT NO. 69, BRISBANE, 25p.

67. CARTER, J.D., 1976. RECENT EXPLORATION FOR URANIUM IN THE KIMBERLEY REGION, IN WESTERN AUSTRALIAN GEOLOGICAL SURVEY, ANNUAL REPORT 1975, GOVERNMENT PRINTER, PERTH, p95-108.

Reviews uranium exploration in the Kimberley region during the period 1968-75 with a view to helping operators avoid further duplication of exploration efforts. Lists the results of airborne radio-metric surveys and of the follow-up work in the region and explains why conglomerates in the Kimberley Basin are unlikely to reveal uranium mineralisation.

68. COLEMAN, P.L., 1984. THE ECONOMICS OF URANIUM EXPLORATION IN AUSTRALIA, IN DARWIN CONFERENCE, 1984, AUS. I.M.M., MELBOURNE, p63-71.

Attempts to quantify the average cost of discovering an economic uranium deposit in Australia, the expected size and grade of a discovery, and the economic returns from uranium exploration.

69. CONNOR, R.F.X., 1975. URANIUM EXPLORATION IN THE NORTHERN TERRITORY [STATEMENT BY THE MINISTER FOR MINERALS AND ENERGY], 4p.

Statement by the Minister for Minerals and Energy outlining the AAEC's programme for uranium exploration in the NT. Briefly outlines the composition of the AAEC's Exploration Division, the function of its two main groups based in Sydney and Darwin, and progress to date in staff recruitment and project tenders. Includes a map of the main areas of current interest for exploration.

70. SALMAND, J., 1970. URANIUM IN AUSTRALIA AND THE WORLD, 1969-70, SOUTHERN MINER, 1, 2, p16-21, 51, 54, 56-61.

Cross References

12, 13, 15, 26, 33, 34, 40, 44, 47, 53, 54, 55, 56, 374, 480, 661

PART TWO

THE URANIUM DEBATE

71. ANON., 1972. AUSTRALIA: MOVES ON COORDINATION IN URANIUM EXPLOITATION, MINING JOURNAL, NO. 178, APRIL, p326-327.

72. ANON., 1975. URANIUM AND NUCLEAR POWER - THE FACTS, ECOLOGY ACTION NEWSLETTER, VOL. 5, NOVEMBER, p3-11.

Answers a number of questions on radiation, nuclear reactors, the hazards and disposal of radioactive wastes, Australia and the nuclear 'option', and nuclear weapons control. Concludes that no method of control exists to deal with the threat already posed by the spread of nuclear power and nuclear weapons proliferation. Argues that not only can Australia avoid relying on uranium-based nuclear power for its own needs, but can supply other countries with ample quantities of coal. Believes Australia should forego uranium profits until the problems of nuclear power generation and waste disposal are solved.

73. ANON., 1976. URANIUM MINING AND MORALITY, SOCIAL SURVEY, VOL. 25, SEPTEMBER, p227-228.

74. ANON., 1977. ACTU CONGRESS DEMANDS REFERENDUM ON URANIUM, MARITIME WORKER, 27 SEPTEMBER, p4-5.

75. ANON., 1977. THE URANIUM DEBATE, ACOA JOURNAL, NO. 729, MAY, p8-12.

76. ANON., 1977. THE URANIUM DEBATE CONTINUES, SOCIAL SURVEY, VOL. 26, APRIL, p67-8.

77. ANON., 1977. URANIUM AS A LEFT-WING ISSUE, ENVIRONMENTAL NEWS, 2,2, p15-16.

Argues that uranium is not just a middle class environmentalists' issue; in addition to the threat it poses to human survival, the uranium issue has relevance for the class-conflict politics of the Australian left in that it further diminishes the power of ordinary people to control society. Speculates that a referendum on uranium could be manipulated by capitalist interests, and suggests alternative forms of action.

78. ANON., 1977. URANIUM MINING: THREAT TO ALL AUSTRALIANS, [SUPPLEMENT TO] INDEPENDENT AUSTRALIAN, 2,2, p23-30.

Traces the origins of the Ranger Inquiry and the role played in its establishment by the Australian conservation movement and by Aboriginal people struggling to defend their land. Notes that the Northern Territory's major uranium deposits are situated in land which is unique in that it contains traditional Aboriginal communities, good examples of Aboriginal rock art, rich archaeological sites, and abundant and diverse flora and fauna, and argues that their development would threaten those communities. Claims that major problems are associated with the radon gas tailings produced in mining uranium, and that the greatest danger arising from nuclear power is reactor waste, in particular plutonium; notes that proposals have been made to use Australia as a storage dump for such waste. Identifies an 'Australian nuclear lobby', discusses anti-uranium campaign strategies and counter moves by the pro-uranium lobby, and outlines arguments commonly used in the debate on uranium and nuclear power. Claims that the media has ignored the real issues in the uranium debate. Speculates that the government will give the go-ahead for uranium mining and export, whatever the Ranger Inquiry may conclude, on the grounds that Australia has to protect its standing as a reliable trading nation.

79. ANON., 1977. URANIUM SLANDER CAMPAIGN, GROK, VOL. 10, APRIL, p17-19.

Claims that nuclear lobbyists have resorted to a slander campaign involving 'smear tactics', misrepresentation of the facts, particularly in the case of the Fox Report, and belittling of the serious consequences of a nuclear reactor accident or nuclear war. Claims the Fox Report shows that uranium would make only a small contribution to Australia's national income or to reducing unemployment. Questions the merit of using nuclear power to solve the energy problem, and speculates whether changing social values may result in a retreat from 'targets of increasing growth and consumer demand', thus obviating any need for nuclear energy. Calls for student support for a moratorium on uranium mining.

80. ANON., 1977. URANIUM AND THE NUCLEAR LOBBY, TECHNICAL TEACHERS ASSOCIATION OF VICTORIA NEWS, VOL. 11, 20 JUNE, p8-10.

Identical to previous entry.

81. ANON., 1977. URANIUM: WHY IT SHOULD BE MINED, NEWS WEEKLY, 6 JULY, p8-10.
82. ANON., 1977. VIEWPOINT OF URANIUM, PROCESSING AND EXPORT BY RANGER URANIUM MINES PTY LTD., ACOA JOURNAL, NO. 729, MAY, p8-12.
83. ANON., 1981. SWEEPING CHANGES TO ATOMIC ACT URGED, ENERGY (CANBERRA), 9, 11, p13-14.
85. ADAMSON, P.D., 1976. URANIUM, DEFENCE AND INTERNATIONAL POLITICS, PACIFIC DEFENCE REPORTER, APRIL, p35-36.

Criticises the pro-uranium arguments of Sir Phillip Baxter (see No. 97) which centre around resource diplomacy (including energy exports to developing countries), Australian nuclear-based defence systems, and the probability of global nuclear war. Argues in favour of alternative defence strategies for Australia and of Australian assistance to developing nations to enable them to utilise their resources more productively.

86. AMALGAMATED METAL WORKERS AND SHIPWRIGHTS UNION, THE AUSTRALIAN RAILWAYS UNION, THE BUILDING WORKERS INDUSTRIAL UNION AND THE MISCELLANEOUS WORKERS UNION, 1977. THE URANIUM DEBATE: A TRADE UNION CONTRIBUTION, AMWSU, ARU, BWIU & MWU, MELBOURNE, 40p.

Contains an introduction by Tom Uren in which he argues that the economic benefits of uranium mining will be slight and will be outweighed by its economic costs; a chapter on risks associated with various stages of the nuclear fuel cycle; a statement highlighting some of these risks by a former General Electric employee; a summary of the Fox Report's recommendations; and a brief description of the early development of anti-uranium mining activity in the aftermath of the Fraser government's uranium decision.

87. ARNDT, H.W., 1977. URANIUM. SOME ECONOMIC ASPECTS OF THE DEBATE, MINING REVIEW, MARCH, p4-6, 10.

Arndt argues that any decision to abandon or defer export of uranium would be deplorable as it is only as a supplier that Australia can exert any leverage in support of international constraint on nuclear weapons proliferation, and since uranium mining would bring Australia significant economic benefits. Domestic policy will not halt or slow down overseas nuclear energy development, so Australia should look towards increasing the benefits and reducing the risks to the world as well as to itself. The anti-uranium

campaign is labelled as 'conscience radicalism', an extension of anti-growth attitudes which are a luxury affordable only by the affluent of the western world.

88. ARNDT., H.W., 1977. URANIUM, WHY IT SHOULD BE MINED, NEWS WEEKLY, 6 JULY, p8-10.

89. AUSTRALIAN CONSERVATION FOUNDATION, 1975. URANIUM, METAL OF MENACE, ACF, MELBOURNE, 53p.

Presents arguments against the export of uranium and discusses some of the problems associated with nuclear power. Outlines the hazards associated with uranium mining, reactor operation, fuel reprocessing, nuclear waste disposal, theft and sabotage, nuclear weapons proliferation and the biological effects of radiation. Discusses energy production and reactor efficiency, and alternative sources of energy and energy conservation. Considers global and Australian implications of exporting uranium and calls for a wide-ranging public debate on this serious issue. Presents an outline of the nuclear fuel cycle and a very brief, simple introduction to nuclear physics.

90. AUSTRALIAN COUNCIL OF CHURCHES, 1977. A STATEMENT IN RESPONSE TO AUSTRALIA'S URANIUM DECISION, IN UNITY [SUPPLEMENT], 24 SEPTEMBER, SYDNEY, pl-4.

Describes the government's decision to allow the Ranger project to go ahead as hasty and ill-conceived and argues that the foreclosing of public debate on the uranium issue will set the government and unions on a collision course and not help resolve the fundamental ethical and practical problems involved. States the Council's position on a number of issues associated with uranium including nuclear weapons proliferation; nuclear waste disposal; sequential mine development; the Atomic Energy Act, and the implications of the decision for the future direction of Australian society. Concludes with a request to the government to defer implementation of the decision until safe waste management strategies can be guaranteed and effective international nuclear safeguards are established, to develop an Energy and Resources Conservation Policy, and to increase its support for research into alternative energy sources.

91. AUSTRALIAN URANIUM PRODUCERS' FORUM, 1976. AUSTRALIA'S URANIUM RESOURCES, THEIR DEVELOPMENT AND CONTRIBUTION TO WORLD ENERGY NEEDS, [ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LTD, MELBOURNE], 24p.

Provides a general background to the uranium and nuclear power industries, and argues in favour of

uranium's development and exploitation into Australia's 'most important export earner'. Outlines current energy resources, and claims that uranium (along with coal) offers the best prospect in meeting future world energy needs. Reviews the present state of nuclear power, world uranium requirements, and the Australian government's position on mining and export of uranium. Describes uranium mining and milling techniques, the nuclear fuel cycle, and types of nuclear reactors. Favourably compares the environmental impact of nuclear power with coal, oil and gas. Cites results from a July 1975 Australian public opinion poll which, it is stated, provides support for the pro-uranium argument.

92. AUSTRALIAN URANIUM PRODUCERS FORUM, 1977. URANIUM - ENERGY SOURCE FOR THE NEXT DECADE AND BEYOND, NATIONAL TIMES [SUPPLEMENT], 13-18 JUNE, p35-38.

Identical to previous entry.

93. BARNETT, D.W., 1979. MINERALS AND ENERGY IN AUSTRALIA, CASSELL, AUSTRALIA, CHAPTER 5, URANIUM, p114-164.

Presents a comprehensive review of the uranium issue in Australia and its implications for nuclear power programmes throughout the world. Traces the history of the Australian uranium industry, considers the world uranium situation and the demand for Australian uranium, and discusses uranium price trends and the Westinghouse dispute. Discusses the issue of Aborigines and uranium and how uranium mining would affect their traditional way of life. Compares environmental protection measures for, and environmental damage caused by, uranium mining and milling at Rum Jungle and Ranger. Discusses potential economic gains to Australia from mining and export of uranium and argues that uranium is vital to Australia's balance of payments and standard of living. Outlines the nuclear fuel cycle, briefly explains the principles underlying nuclear generation of electricity and comments on the likelihood of any Australian state (or territory) adopting nuclear power. Discusses types, sources and effects of radiation. Outlines the methods used for high and low level nuclear waste disposal, and argues that nuclear waste disposal seems nowhere near as difficult or dangerous a problem as the disposal of some other chemicals or industrial wastes. Describes methods of enrichment, claims that it would be feasible for Australia to build enrichment plants to supply part of world demand from 1990 onwards, and argues that if Australia were to

fabricate, reprocess and permanently store nuclear waste the danger of Australian uranium contributing to nuclear weapons proliferation would be eliminated. Compares revenue and investment costs associated with further processing of uranium in Australia. Attacks the widely held belief that nuclear power is inextricably linked to nuclear weapons proliferation.

94. BARRETT, N., 1977. URANIUM MINING: DANGEROUS AND UNNECESSARY, ACOA JOURNAL, NO. 730, JUNE, p17-19.

95. BARRETT, R. AND RUSS, P., 1976. URANIUM MINING MENACE, FARRAGO, VOL. 54, 23 APRIL, p10-11.

Reflects on the effectiveness of the Ranger Inquiry, reviews some arguments and problems associated with uranium development, and advises careful examination of the implications of exporting Australian uranium. Cites evidence linking various health hazards with employment in the nuclear industry (including uranium mining). Expresses concern about the safety of nuclear reactors, the problem of nuclear waste disposal and the possibility of misuse of plutonium by terrorists or politically unstable governments, and reviews the effectiveness of the NPT. Notes environmentalists' concerns regarding the mining companies' inability to answer fundamental questions regarding their proposed operations, and government failure to formulate a clear policy on uranium mining. Argues that economic considerations are pressurising government into ignoring the moral and ethical issues inherent in the mining and export of uranium.

96. BARRIE, J. AND TURNER, A.C., 1975. THE BACKGROUND TO NABARLEK: A SUMMARY REPORT ON URANIUM IN AUSTRALIA PREPARED FOR THE NORTHERN LAND COUNCIL, AMINCO AND ASSOCIATES PTY LTD., 27p.

Provides a description of uranium and its properties, explains in simple terms what occurs in the nuclear fuel cycle, and reviews the history of uranium mining in Australia, the industry's current status, and the uranium policy of the Labor federal government. Summarises the arguments for and against developing the Nabarlek uranium deposit, focusing on its likely impact on local Aboriginal people and on nuclear proliferation and nuclear pollution. The danger of pollution is first discussed in general terms, after which the authors discuss the ways in which it might occur at Nabarlek.

97. BAXTER, P., 1976. CAN URANIUM CONTRIBUTE TO THE DEFENCE OF AUSTRALIA, PACIFIC DEFENCE REPORTER, VOL. 11, FEBRUARY, p16-17.

Cites AAEC figures on the size and value of Australian uranium deposits, argues that Australia could export uranium to friendly countries without depleting reserves ultimately needed for domestic use, and suggests a number of ways uranium can contribute to the nation's defence, including provision of funds for defence, enabling exercise of resource diplomacy from a position of strength, and use in nuclear weapons. Questions the effectiveness of the NPT and argues that ratification of the treaty need not inhibit Australia's development of nuclear defence facilities which he claims are essential for the nation's future security. Discusses enrichment technology and argues that Australia possesses not only uranium, but scientists, engineers, technologists and an industry which could develop and produce nuclear defence facilities if given the opportunity.

98. BAXTER, P., 1976. THE URANIUM ISSUE: SOME ASPECTS OF THE CASE FOR NUCLEAR POWER, PROCEEDINGS OF THE ROYAL AUSTRALIAN CHEMICAL INSTITUTE, VOL. 43, JANUARY, p16-21.
99. BENNETT, E.M., 1977. SHOULD AUSTRALIA MINE AND DISTRIBUTE URANIUM: AN AFFIRMATIVE CASE FROM A SCIENTIST, CATHOLIC LEADER, 31 JULY, p3-4.
100. BICEVSKIS, A., 1984. THE NUCLEAR DEBATE IN AUSTRALIA, NUCLEAR AUSTRALIA, 1, 5, p4-6.
101. BICEVSKIS, A., 1984. THE NUCLEAR DEBATE IN AUSTRALIA, NUCLEAR AUSTRALIA, 1, 6, p1-3.
102. BICEVSKIS, A., 1985. THE NUCLEAR DEBATE IN AUSTRALIA, NUCLEAR AUSTRALIA, 2, 1, p3-4.
103. BIRD, J.R. AND GEMMELL, W., 1975. THE URANIUM DEBATE, AUSTRALIAN PHYSICIST, 12, 9, p115-120.
104. BROWNE, E., 1977. THE NUCLEAR DILEMMA, NATIONAL PARKS JOURNAL, VOL. 21, JUNE/JULY, p22-23.
105. BUTLER, S., RAYMOND, R. AND WATSON-MUNRO, C., 1977. URANIUM ON TRIAL, HOROWITZ, SYDNEY, 148p.

Outlines the world's energy problems and describes some proposed short-term solutions. Reviews the nuclear debate and suggests measures to ensure safe and publicly-acceptable development of worldwide thermal reactor programmes. Claims that Australian uranium

reserves represent a significant but not major proportion of world reserves, but that this proportion could rise with more exploration. Argues that a decision to mine and export Australian uranium is irrelevant to the world's movement towards nuclear power generation, but that Australia could help by making its uranium available at a 'reasonable' market price. Outlines techniques for mining and milling uranium, management of tailings, and safety hazards and precautionary measures associated with uranium mining. Presents the personal viewpoint of each author regarding future world energy developments and Australian uranium policy.

Butler argues in favour of mining and export of Australian uranium as an interim measure, but favours the development of solar energy as a future power source. Argues in favour of Australian enrichment and return of spent fuel to Australia under IAEA safeguards for reprocessing.

Raymond criticises the Western world's 'profligate' use of energy resources, and argues in favour of energy conservation, but believes the continued development of nuclear power is necessary to meet world energy demand. Argues that Australia can contribute more to world stability by providing uranium than by withholding it. Criticises mining of any kind in national parks, including Kakadu.

Watson-Munro regards nuclear power as a 'stop-gap' measure but admits to being worried by the fast breeder 'philosophy' and the misuse of plutonium. Argues strongly for research into new energy sources and conservation of existing energy fuels, especially petroleum.

106. CALDICOTT, H., 1978. NUCLEAR MADNESS: WHAT YOU CAN DO!, JACARANDA PRESS, MILTON, QUEENSLAND, 120p.

The first six chapters offer a general analysis of health, environmental and nuclear war risks which in the author's view are associated with the nuclear fuel cycle. The final chapter deals with the issue of how the development and application of nuclear technologies can be halted, drawing partly on the author's experience in the anti-uranium campaign in Australia. Argues that attempts to employ existing political and legal processes are doomed to failure, and that the only effective approach is to mount campaigns aimed at educating politicians, government officials, trade unions and the general public regarding the dangers of nuclear energy and at mobilising public opinion to exert pressure through the democratic process.

Describes the tactics employed by anti-uranium campaigners in Australia and her own role in the campaign, including a visit to the Mary Kathleen uranium mine designed to convince miners of the dangers to themselves and to others from the nuclear fuel cycle.

107. CAMILLERI, J., 1976. URANIUM EXPORTS: COMMERCIAL INCENTIVES VS NUCLEAR DANGERS, AUSTRALIAN OUTLOOK, NO. 30, APRIL, p120-135.

Outlines the development of the Whitlam government's uranium policy and claims that, despite the very significant differences separating the major political parties on such issues as foreign ownership, export controls and domestic processing, the Whitlam and Fraser governments shared a profit-oriented approach to uranium and a predisposition to place commercial interests above political, ecological and ethical considerations. Argues against such an approach to uranium policy, claiming that mining of Australian uranium creates the risk of major environmental damage and strengthens the trend towards international nuclear proliferation. Analyses this second point in detail, arguing that the NPT and the safeguards system operated by the IAEA have many weaknesses. Admits that a decision by Australia not to mine uranium would not bring an immediate end to the world-wide development of nuclear power, but claims that an explicit rejection of the economic inducements offered by the nuclear industry would have a far-reaching effect on the future of nuclear power.

108. CAMILLERI, J., 1979. NUCLEAR CONTROVERSY IN AUSTRALIA: THE URANIUM CAMPAIGN, BULLETIN OF THE ATOMIC SCIENTISTS, 35, 4, APRIL, p40-44.

Outlines major developments in the debate on mining of Australian uranium during the period 1976-1978. Discusses the development of the anti-uranium movement, and the publication of the First and Second Ranger Reports and the reaction to them of the Fraser government and of anti- and pro-uranium interests. Outlines changes in public opinion on uranium mining, the evolution of ALP and trade union policy, and the role of the NLC in the Ranger negotiations. Briefly discusses the implications for civil liberties of uranium-related legislation, and claims that the Fraser government's nuclear safeguards provisions were quickly watered down in pursuit of uranium contracts at a time of world over-supply.

109. CAMILLERI, J., MACKAY, G.A. AND WHEELWRIGHT, E.L., 1977. URANIUM: THREE VIEWS, RABELAIS, 11, 8, p9-11.

110. CAMPAIGN FOR NUCLEAR SAFETY, 1975. URANIUM, EXPORTING LIFE OR DEATH? [SUPPLEMENT TO] ECOLOGY ACTION NEWSLETTER, VOL. 5, NOVEMBER, p1-8.

111. CARNE, D., 1980. URANIUM MINING: SOME THEOLOGICAL AND ETHICAL REFLECTIONS, INTERCHANGE, 26, p107-135.

Discusses the use of 'moral' arguments by protagonists in the uranium debate (including the ALP, the ACTU, the Liberal party and Bob Hawke) to try and sway public opinion. Claims that no theological guidance exists for Christian attitudes and responses to uranium mining in Australia and its consequences here and abroad. Argues that the church should take the lead in educating public consciousness in the rudiments of moral philosophy in order to make rational, informed and concerned decisions, and presents a collection of short essays which the author hopes will contribute to 'creative theological and ethical dialogue' on these matters. Agrees with the recommendations of the Fox Commission on Aboriginal land rights, environmental and health hazards of uranium mining, and Australian uranium's unintentional contribution to the risk of nuclear war. Believes that the final decision on uranium mining should rest with an informed public and calls upon Australian Christians to take a lead in the uranium educative process.

112. CARRICK, J., 1982. SHEDDING SOME LIGHT ON THE NUCLEAR ENERGY DEBATE, AUSTRALIAN FOREIGN AFFAIRS RECORD, JULY, p497-480.

Text of an edited news release issued by Sir John Carrick, Minister for National Development and Energy, regretting that public debate on nuclear matters was based on 'half-truths and untruths' which he claimed generated fears about nuclear hazards and raised false expectations about the availability of alternative energy sources and a decline in the need for nuclear power. Cites IAEA and OECD energy demand statistics which support pro-nuclear power arguments, refutes claims that renewable energy sources constitute a viable alternative to nuclear power, and previews new and more appropriate legislation to replace the Atomic Energy Act 1953.

113. CATHOLIC COMMISSION FOR JUSTICE AND PEACE, 1976. NUCLEAR ENERGY - UNLIMITED POTENTIAL OR UNLIMITED RISK, AUSTRALIAN COUNCIL OF CHURCHES, SYDNEY, 57p.

Comprises a collection of articles by guest speakers at a conference convened by the Catholic Commission for Justice and Peace. Topics covered include the role of

nuclear power in Australia's future, health, environmental and proliferation hazards allegedly associated with the nuclear fuel cycle, and theological and ethical questions raised by the issue of nuclear power. Also presents a list of resolutions adopted by the conference, a summary and recommendations submitted to the Ranger Inquiry and the text of a 1976 statement by the World Council of Churches to the IAEA on the public acceptance of nuclear power.

114. COALITION FOR A NUCLEAR FREE AUSTRALIA, 1984. BACKGROUND TO ROXBY DOWNS, CAMPAIGN AGAINST NUCLEAR ENERGY/COALITION FOR A NUCLEAR FREE AUSTRALIA, [MELBOURNE], 40p.

Describes the Roxby Downs project, and critically reviews the Labor government's uranium policy and its reliance on the IAEA safeguards systems. Criticises government funding of the uranium industry on the grounds that public monies could have been more beneficially used to create employment in areas of need. Examines the companies involved in the Roxby venture and relates British Petroleum's activities to British intent to secure reliable supplies of uranium. Refutes pro-uranium arguments concerning demand for uranium and the Third World's need for nuclear power, reviews the nuclear policies of uranium user countries, and argues that the peaceful and military uses of uranium cannot be separated. Claims that uranium mining and milling poses serious threats to mineworkers' health despite the application of the ALARA principle (As Low As Reasonably Achievable), and speculates whether Roxby uranium will be used in weapons manufacture. Criticises mining methods at Roxby Downs which, it is claimed, will contaminate the area's natural underground water supply. Discusses trade union policy on uranium, and expresses concern about balance in the Australian media which, the authors claim, is largely owned and influenced by major corporations, including mining companies. Reports the Kokatha people's claim to ownership of the surrounding area and their opposition to mining at Roxby. Includes a chronological list of anti-nuclear actions in Australia and the Pacific.

115. COLEING, P. AND ANGEL, G., 1983. SUBMISSION TO THE AUSTRALIAN GOVERNMENT REGARDING THE URANIUM MINING INDUSTRY IN AUSTRALIA, SYDNEY ANTI-URANIUM CO-ORDINATING COMMITTEE, SYDNEY, 24p.

Text of a submission on behalf of anti-uranium groups to the Australian government calling for an immediate halt to the mining and export of uranium. Claims that the spread of nuclear energy means the spread of

nuclear weapons and that no way exists to prevent Australian uranium from being used for nuclear bombs. Presents a summary of seven proposed and existing uranium mines in Australia and specific reasons for not mining each of them. Argues that a downturn in uranium demand would result in a buyers' market in which nuclear safeguards and company safety measures would be disregarded.

116. COLLIS, P.M., 1977. THE URANIUM DEBATE, ACOA JOURNAL, NO. 731, JULY, p8-9.

117. COMMITTEE FOR ECONOMIC DEVELOPMENT OF AUSTRALIA RESEARCH GROUP, 1976. URANIUM, CEDA ENERGY PROJECT POSITION PAPER NO. 4, CEDA, [SYDNEY], 30p.

Reviews policy problems associated with the Australian uranium industry, and summarises the Research Group's conclusions and recommendations. Discusses nuclear energy's potential as a future fuel source, domestic and western world uranium resources, the current status of uranium exploration and of the uranium mining industry, and the establishment of an enrichment industry in Australia. Reviews world demand for uranium, comments on Australian uranium export policy, pricing and contract conditions, and makes some recommendations regarding the content of future sales contracts. Discusses various aspects of Australia's uranium policy, environmental considerations and public acceptance of nuclear power. Makes some recommendations on guidelines for uranium policy and includes some dissenting opinions (from members of the Research Group).

118. CROOK, K.A.W., 1977. TOWARDS A COMPREHENSIVE URANIUM FUEL MANAGEMENT POLICY FOR AUSTRALIA, SEARCH, 8,7, JULY, p223-231.

Outlines the author's proposal for a comprehensive uranium fuel management policy for Australia (CUFMAP) based on provision of Australian uranium to NPT countries only, not in the form of yellowcake but as Australian-fabricated fuel rods leased and returned to Australia for reprocessing, with waste disposal in suitable geological structures in Central Australia. Reviews the characteristics of uranium, outlines the problems of radiation and radioactive waste disposal, examines disposal/storage technologies and makes some recommendations regarding the choice of an appropriate technology and waste disposal locations. Details the CUFMAP policy, outlines feasibility studies required to establish its viability, and discusses future implications. Recommends that Australia's uranium not be mined until the safety requirements, the policy

implications and the feasibility and cost of such a management policy are assessed, understood and compared with the added risks entailed in a less stringent policy.

119. DALTON, L., 1978. ECONOMIC MYTHS OF URANIUM MINING: THE MODERN DREAMTIME, DISSENT, VOL. 37, AUTUMN, p8-13.

Outlines in brief the arguments put forward by both sides involved in the uranium debate, and claims that besides having environmental and nuclear proliferation hazards associated with it, nuclear power cannot give the economic and energy benefits claimed by its proponents. Critically reviews nuclear construction programmes, the practice of underwriting unprofitable ventures with public money, and the twofold motivation behind building nuclear plants in the Third World (a desire by governments to have nuclear weapons and by the nuclear industry in the west to sell reactors). Reviews the social and political backgrounds of organised citizen groups opposed to the nuclear industry. Claims that arguments about 'energy hungry nations', the ratio of potential uranium supply to latest estimated demand, and employment benefits have been exaggerated by the Australian government. Discusses alternative uses of physical and financial resources involved in uranium mining. Reviews Prime Minister Fraser's strategy of offering agricultural and mineral export packages in an effort to placate rural voters, argues that mineral exports can contribute to a decline in the manufacturing sector, and questions federal government intentions regarding its equity in the uranium industry. Briefly mentions United States nuclear policy and its implications for spent fuel storage in Australia.

120. DANIEL, W., 1977. THE PROBLEM OF URANIUM, MESSANGER OF THE SACRED HEART, JUNE, p36-40.

Presents extracts from a talk by a Jesuit priest. Identifies two main areas of ethical debate on the uranium mining question: the moral assessment of the whole nuclear power industry, and the responsibility of the uranium producers who provide the raw material for that industry. Argues that a decision to continue or abandon nuclear power must be made, discusses the problems of waste disposal and nuclear weapons proliferation, and questions the economic argument in support of developing Australian uranium. Gives reasons for scepticism about the premise that to withhold uranium is a futile gesture. Questions the modern world's drive for economic and technological growth which includes the development of nuclear power,

and advises careful ethical reflection on the part of all people and nations.

121. DIESENDORF, M., 1985. THE DANGER OF PEACEFUL URANIUM, SIMPLY LIVING, 2,6, p23-24.

Opposes the export of Australian uranium on the grounds that (1) Nuclear power is a minor source of energy for developed countries and an inappropriate one for developing countries, undermining claims that Australia is morally obliged to supply the world with an 'indispensible' source of energy and (2) There is a clear link between the civil nuclear power industry and proliferation of nuclear arms, because of the movement of materials and personnel from civil activities into weapons production. Australia should terminate uranium exports and provide assistance with non-nuclear energy technologies to countries which forego nuclear weapons.

122. ELLIOTT, M. (ED), 1977. GROUND FOR CONCERN: AUSTRALIA'S URANIUM AND HUMAN SURVIVAL, PENGUIN BOOKS, 235p.

Contains chapters on the hazards associated with the nuclear fuel cycle, disposal of nuclear wastes, nuclear proliferation, alternative energy sources, the politics of the nuclear industry, and on uranium mining in Australia. (This last chapter is annotated separately as No. 654.)

123. ENERGY RESOURCES OF AUSTRALIA, 1987. WHY NUCLEAR?, ERA, SYDNEY, 16p.

Explains how and why a growing portion of current and future global energy needs met by electricity will be derived from nuclear power. Cites evidence in support of claims that nuclear power is safe, clean and cheap and gives a brief review of alternative sources of energy. Comments on Australia's position as a supplier rather than user of uranium and details ERA's customer countries.

124. ERSKINE, D., ET AL, 1983. LABOR'S DILEMMA: POLICY VS PROFIT, WEEKEND AUSTRALIAN, 5-6 NOVEMBER, p16.

125. FALK, J., 1976. AUSTRALIAN URANIUM: PANDORA'S BOX? RETRIEVAL, FEBRUARY/MARCH. p17-22.

The author questions why, in the face of increasing community opposition, the Fraser government and the mining industry are so anxious to rush into uranium mining. He explains that major arguments against uranium mining are concerned more with the end use of exported uranium than with mining itself, and points

out that around the world opposition to nuclear power is growing rapidly. Claims that vast quantities of fossil fuels are used in building and maintaining nuclear reactors, and that it is possible for a nuclear reactor programme to consume nearly as much energy in the form of fossil fuels as it produces in electricity.

126. FALK, J., 1982. GLOBAL FISSION, THE BATTLE OVER NUCLEAR POWER, OXFORD UNIVERSITY PRESS, MELBOURNE, CHAPTER 11, THE AUSTRALIAN EXPERIENCE, p256-284.

Reviews the attitudes of various groups involved in the nuclear debate to uranium and nuclear power, including conservationists, the Whitlam government (whose anxiety about public opposition led to the establishment of the Ranger Inquiry), the ACTU and Aborigines. Traces the uranium debate, and criticises the Fraser government's justification for uranium mining and export on the grounds that effective nuclear safeguards would be applied. Outlines the development of public opposition to uranium and its growth in the ALP and the ACTU, and the obstacle created by Aboriginal land rights to uranium mining in the Northern Territory. Examines how international issues began to influence the uranium debate (particularly the slow-down in growth of world nuclear capacity and falling demand for uranium). Critically reviews plans for nuclear developments in Australia. Claims that opposition to nuclear power is becoming more global, coordinated and effective.

127. FALK, J. 1984. AUSTRALIA AND NUCLEAR WAR: CAN WE BREAK THE LINKS, IN 54TH ANZAAS CONGRESS, 18 MAY 1984, 35p, mf.

128. GAWENDA, M., 1983. SHOWDOWN AT ROXBY DOWNS, AGE, 26 AUGUST, p11.

Presents the opposing views of a mining company executive, Hugh Morgan, and anti-uranium protester, Pat Jessen. Morgan comments on different types of protesters and their views, and states his disbelief in links between nuclear proliferation and peaceful uses of uranium and his view that energy hungry nations such as Japan and France would get their uranium from Australia's less strict competitors. Outlines Jessen's involvement in the anti-uranium movement and her claim that state and federal government approvals for mining at Roxby both ignored official ALP policy and showed the irrelevance of public opinion in the face of mining company determination to exploit mineral wealth. Jessen believes that the nuclear power industry and

development of nuclear weapons are linked, and claims that Australians have a moral duty to the world to take a stand against the uranium industry.

129. GOTTILIEBSEN, R., 1975. URANIUM: THE CASE FOR AND AGAINST SELLING IT OVERSEAS, NATIONAL TIMES, 27 OCTOBER-1 NOVEMBER, p56, 58.

Presents both sides of the argument relating to overseas sales of Australian uranium and details the major mining companies which will benefit from a decision to export.

130. GRAY, N., ET AL., 1977. ATOMIC HORROR COMIC, NICKY GRAY AND BOB CLUTTERBUCK, MOIL, DARWIN, 23p.

Illustrates in cartoon form a futuristic scenario in which uranium and nuclear power are well established. Follows one woman's nightmare about the consequences of uranium mining and nuclear power, and how she, Aboriginal people and anti-uranium demonstrators worldwide succeeded in stopping the use of nuclear power. Implies that adoption of alternative energy strategies and granting of Aboriginal land rights subsequently occurred.

131. GREEN, D., 1977. URANIUM MINING AND RELATED ISSUES, ST MARK'S REVIEW, NO. 92, DECEMBER, p15-21.

Critically reviews the uranium issue from an ethical, historical and strategic perspective, criticises Australia's role in the industry, and makes some recommendations regarding the direction of church policy on the nuclear issue. Questions the reasons for the rapid development of nuclear power, and suggests that the comparatively slow progress in developing alternative and unarmful energy sources reflects their low strategic value to governments. Alleges that the findings of the Fox Report are being distorted, misinterpreted or ignored, and that the issues of Aborigines and environmental impact are not receiving sufficient consideration. Claims Australia has no real economic need to sell uranium and should be developing solar power. Raises technological and moral issues involved in nuclear waste disposal, and calls upon the church to speak out against uranium and nuclear power.

132. GREY, A.J., 1978. URANIUM - AUSTRALIA'S CONTRIBUTION TO WORLD STABILITY, JOBSON'S MINING YEAR BOOK 1978, p298, 304.

Comments on the oil supply shortage, and argues that there must be a massive and rapid shift from oil to

coal and nuclear power worldwide, and that consequently Australia's uranium reserves are highly significant in terms of world stability. Predicts a uranium supply shortage in the late 1980s unless production is increased, indicating the existence of a demand for Australian uranium. Outlines employment opportunities and other economic benefits which it is claimed will arise from an Australian uranium industry. Argues that exporting Australian uranium will assist in improving international safeguards for the development of peaceful nuclear energy use. Claims that the government has lessened the impact of uranium mining on the environment and the local Aborigines.

133. GREY, A.J., 1981. ENERGY TO THE YEAR 2001, IN PAPERS, AUS.I.M.M. CONFERENCE SERIES 10, SYDNEY CONFERENCE, JULY 1981, p1-8.
134. GREY, A.J., GAUL, J., CROOKS, P. AND ROBOTHAM, R., 1980. URANIUM - WHAT ROLE, IN AUSTRALIA: THE ENERGY SCENARIO TODAY, TOMORROW AND 2001, TRANSCRIPT OF PROCEEDINGS FROM THE 19TH ANNUAL MEETING OF THE AMERICAN CHAMBER OF COMMERCE IN AUSTRALIA, SYDNEY, p43-50.
135. GROVER, J., 1979. THAT AMWSU NEWSLETTER ON URANIUM - WHAT ITS UNNAMED AUTHORS DID NOT TELL US, A COMMENTARY, AUSTRALIAN MINING INDUSTRY COUNCIL, SYDNEY, SEPTEMBER, 29p.

Refutes criticisms of uranium mining made in an AMWSU newsletter. Claims that they are misleading in that substantial and important aspects of the uranium issue are either misrepresented or left out, that they reflect the stop-growth and anti-energy policies of certain groups in the United States, and that by ignoring increasing energy demands they reveal an anti-working man stance. Defends the credibility of experts and scientists, and refutes the idea of 'vested interests' in the uranium industry. Denies AMWSU allegations about health and safety in the uranium industry, the potent dangers of nuclear reactors, nuclear weapons proliferation, Aboriginal rights, and the effects of radiation. Includes Dr Edward Teller's answers to common questions about nuclear power. Claims that the media is not prepared to air the true facts because of the time and space this requires, but expresses his confidence that truth will out.

136. GROVER, J., 1978. SOME TRUTHS ABOUT URANIUM, QUARRY MINE AND PIT, 17, 3, p12-14.

137. HAMPSON, D. AND ROBOTHAM, R., 1980. URANIUM: FOR AND AGAINST, LAB TALK, JUNE, p5-7.

Hampson argues the affirmative case, stressing the need for energy, the key role of electricity, and the advantage of generating electricity by nuclear means; he claims that nuclear energy is an acceptably safe and increasingly important component of the world's energy supply and that Australia should involve itself in the peaceful development of nuclear power. Robotham puts the negative case, arguing that world-wide reductions in nuclear power programmes will mean decreasing demand for uranium in the future. In addition he claims that nuclear power poses grave biological risks which are greatest at the end of the nuclear fuel cycle (high-level nuclear waste disposal). Discusses the hazards of radon gas associated with mining uranium, and cites evidence in support of claims that serious health hazards including cancer are associated with nuclear reprocessing. Argues that governments cannot yet prevent nuclear material from being lost or stolen.

138. HARDY, C.J., 1979. THE NUCLEAR FUEL CYCLE AND ITS IMPLICATIONS FOR AUSTRALIA, ENERGY RESOURCES AND TECHNOLOGY, 1, 3, p10-13.

139. HARRIS, G., 1984. THE URANIUM SELLOUT, BLINDED BY PROFITS, DIRECT ACTION, 13 JUNE, p12-13.

Presents in separate sections - (1) A critical review of the ASTEC Report by Greenpeace, which suggests that the ASTEC inquiry was set up to lend support to Hawke's 'pro-uranium policy'. (2) A critical examination of the effectiveness of the SYNROC nuclear waste disposal method. (3) An analysis of Labor's draft policy on uranium exports in which the author reiterates the insoluble nature of waste disposal and nuclear weapons problems. (4) A letter from the group 'Goldfields against Nuclear Energy' which questions the Western Australian Minister for mines on recent uranium mining operations near Kalgoorlie, the nature of Japanese involvement in the projects, and the state government's policy on uranium mining.

140. HARRIS, S., 1980. NUCLEAR ENERGY IN THE PACIFIC: AN OVERVIEW OF AUSTRALIA'S INTERESTS, IN HARRIS, S. AND OSHIMA, K. (EDS), AUSTRALIA AND JAPAN: NUCLEAR ENERGY ISSUES IN THE PACIFIC, AUSTRALIA-JAPAN ECONOMIC RELATIONS RESEARCH PROJECT, CANBERRA, p225-36.

Reviews Australia's interests in nuclear energy in the Pacific, and factors affecting public opinion on

uranium mining. Identifies the major concerns as: the economic benefits of developing Australian uranium; global energy requirements related to demand for nuclear power; and the link between nuclear power and weapons production and proliferation. Discusses their importance for Australia, highlights the last area of concern, and reviews the conflicts and linkages among Australia's interests which influence decisions to mine and export uranium including the effectiveness of international safeguards, nuclear capacity, breeder reactors, world market forces and uranium demand. Identifies and briefly discusses enrichment, waste disposal and reprocessing, and breeder reactors as some of the technical issues most relevant to nuclear energy in the Pacific region.

141. HAWTHORNE, N., 1977. URANIUM ENERGY AS A STOP-GAP - ONLY WAY TO PREVENT CATAclysm?, SEAMEN'S JOURNAL, VOL 32, JULY/ AUGUST, p182-183.

Considers the case for using uranium as an energy fuel in the light of predictions that the world will run short of other forms of energy due to rapid population growth, and speculates whether withholding Australian uranium would encourage development of breeder reactors. Reviews alternative energy sources and technologies which are considered inadequate to meeting growing energy needs, and briefly describes the process and potential for electricity generation from nuclear fuel. Discusses the dangers of nuclear waste and nuclear reactors. Admits that no major radiation leaks have occurred from fission reactors, but fears the consequences of a fusion reactor accident. Suggests that Australia should sell its uranium on the basis that fusion reactors will not be built, and that the major nuclear power and advisory bodies liaise to discover a safer form of energy.

142. HAYES, D., FALK, J. AND BARRETT, N., 1977. REDLIGHT FOR YELLOWCAKE, FRIENDS OF THE EARTH AUSTRALIA, MELBOURNE, 96p.

Section 1 discusses the 'local' issues of Australian uranium. The geographic setting of uranium reserves and their size is described and details are provided on the corporate structure and ownership of the companies involved. Considers the consequences of current uranium mining proposals under the following headings: The ALP and the Ranger Inquiry, Aborigines and Mining, Uranium Mining Dangers and Kakadu National Park. Concern is expressed over suggestions that Australia is perhaps one of the most suitable areas in the world for storing high level waste.

Section 2 deals with the nuclear fuel cycle and with a number of 'international issues' relevant to uranium in Australia. These include the economics of nuclear energy, uranium supply, safety and environmental aspects of nuclear plants, weapons proliferation, nuclear terrorism, and the social implications of dependence on nuclear energy.

Section 3 analyses the findings of the First Fox Report, and quotes extensively from it in attempting to establish the point that the Report did not provide a 'green light' for mining Australian uranium but rather provided evidence relating to reactor safety, the economics of uranium mining, alternative energy sources and nuclear proliferation which indicated that expansion of nuclear energy should be restricted. However the authors argue that the Commissioners failed to make explicit recommendations regarding Australian uranium policy on the basis of this evidence, allowing the federal government and mining industry spokesmen and their supporters to claim that the Report opened the way for mining of Australia's uranium.

Section 4 updates sections one and two with discussion of recent international and local development in areas such as proliferation and terrorism, nuclear waste, mounting international and Australian opposition to uranium mining and nuclear energy, nuclear economics and 'uranium miners' manoeuvres'.

143. HENDERSON, I., 1977. URANIUM: THE AUSTRALIAN PUBLIC MUST DECIDE, RUPERT NEWSLETTER, NO. 8, APRIL, p9-10.
144. HIGSON, D.J., 1979. THE CONSEQUENCES OF DEVELOPING OR NOT DEVELOPING URANIUM, COUNCIL OF RESOURCES AND ENERGY, NUNAWADING, VICTORIA, 8p.

Reviews the consequences of developing (or not developing) uranium. Stresses the need for an objective presentation of all the relevant facts to the public, and for rational unbiased consideration of the issues involved; claims that the AAEC is well qualified to undertake the first task. Reviews the role of experts in formulating government policy on uranium, and claims that expert advice is essential and largely unbiased. Distinguishes between types of experts and is highly critical of the uninformed or unqualified variety. Favourably reviews reactor safety, employee and public health related to nuclear power, and waste disposal. Questions the viability of 'exotic' power sources, reviews the world nuclear power industry, and claims considerable gains for Australia from supplying uranium. Discusses the validity of Aboriginal objections to uranium mining and remarks

that some environmental damage is an inevitable consequence of meeting society's material requirements. Considers how nuclear power could benefit underdeveloped nations. Discusses proliferation only briefly, arguing that it is an irrelevant issue in the Australian uranium debate. Claims that no one has the right to insist on, nor would the majority of people want, lowered standards of living which the author claims would inevitably result from not developing nuclear power.

145. HILL, D., 1977. URANIUM: AUSTRALIA AND THE THIRD WORLD, AUSTRALIAN CONSERVATION FOUNDATION NEWSLETTER, p5, 7.

Argues that the Australian Conservation Foundation's opposition to the export of Australian uranium is not detrimental to less affluent nations. Claims that meeting the growing energy needs of rich industrialised nations like Japan tends to widen the gap between rich and poor nations, promote international instability, and encourage the profligate use of energy resources. Disputes claims that nuclear power is an appropriate energy solution for third world countries and that exporting uranium is a means of helping poor nations. Argues that Australia can contribute to the welfare of poor nations in ways that avoid the environmental damage associated with nuclear power, and take account of the economic and social constraints of those countries. Discusses appropriate energy sources and energy conservation measures for rural populations in poor countries which can allow them to avoid spending huge sums on nuclear plants and on centralising populations.

146. HOAD, B., 1976. HOW SAFE IS NUCLEAR ENERGY? BULLETIN, 17 JULY, p32-38.

In the light of the most recent and extensive Australian uranium discoveries, the author discusses how safe nuclear power really is. Reviews in brief the early history of the Australian uranium mining industry, the six major groups involved in uranium mining, and the establishment of the Ranger Inquiry by the Whitlam government. Outlines the characteristics of uranium, the nuclear fuel cycle and the problems of storing the radioactive waste products it generates. Reviews the worldwide development of nuclear power, progress in reactor technology, the cost effectiveness of nuclear power, the safety record of nuclear reactors and the likelihood of a serious nuclear accident. Reviews ALP and ACTU uranium policy, suggests the anti-nuclear stance of the ALP and former Whitlam government appears to be weakening, notes the ACTU's decision to

let mining proceed at Mary Kathleen, and claims that the prospect of a profitable uranium export industry and its employment potential are proving increasingly attractive within the ALP.

147. HOLDSWORTH, W., 1977. LEAVE IT IN THE GROUND, ACOA JOURNAL, NO. 731, JULY, p9-10.

Comments critically on specific assertions made in an article by Ranger Uranium Mines which supported mining and export of Australian uranium. The nine points at issue include comparison of the advertising budgets of mining and anti-uranium groups; allegations of misrepresenting the Ranger Inquiry's findings and Aboriginal views; underplaying the serious consequences of a reactor accident and overstating the industry's ability to cope with it; claims about safe disposal of nuclear waste and that growth of nuclear power has focused more attention on the dangers of nuclear war; and the risks of terrorism. Calls for Australia to leave its uranium in the ground.

148. HORE-LACY, I. AND HUBBERY, R., 1978. NUCLEAR ELECTRICITY, AUSTRALIAN MINING INDUSTRY COUNCIL, CANBERRA, CHAPTER 7, 'THE AUSTRALIAN SCENE', p74-78.

Refers briefly to the history of the Australian uranium industry, presents a comprehensive list of the positions taken in the community on nuclear power and the mining and export of Australian uranium, and considers both sides of the debate. Refers to the Flowers (UK), Ford (US) and Fox Reports, arguing that their value to the public lies not so much in their detailed evidence and technical arguments, but more in their considered conclusions (which are summarised in appendix 3). Concedes that there are areas of concern regarding nuclear power but claims that a choice has ultimately to be made between coal and nuclear power to provide electricity in developing nations in the foreseeable future.

149. INDEPENDENT COMMITTEE OF INQUIRY INTO NUCLEAR WEAPONS AND OTHER CONSEQUENCES OF AUSTRALIAN URANIUM MINING, 1984. AUSTRALIA AND THE NUCLEAR CHOICE, TOTAL ENVIRONMENT CENTRE, SYDNEY, 208p.

Contains the report of the Inquiry established by groups concerned about uranium mining, run simultaneously with the ASTEC Inquiry and focusing especially on proliferation of nuclear weapons. The Report is divided into four Parts, the first deals with the Effects of Nuclear War, while the remaining three each contain a number of chapters and a summary which presents major conclusions. Part II deals with the

Nuclear Fuel Cycle, the Health Consequences of Nuclear Energy, Waste Disposal and Uranium Mining and the Australian Environment (Chapter 5). Part III deals with Nuclear Technology and Sovereignty, The Political Economy of Nuclear Energy, and Australia and Nuclear Energy (Chapter 9). Part IV contains chapters on the History of Proliferation, Disarmament, Nuclear Inspection and Promotion, Australia and Proliferation (Chapter 14) and the Social Consequences of Nuclear Energy. Much of the discussion is in general terms, with Chapters 5, 9 and 14 containing substantial amounts of material specific to Australia. Chapter 5 provides a brief summary of the main actual and potential uranium mines, indicating location, ownership, ore reserves, mining method and the nature of the surrounding environment, and discusses the impact of uranium mining under the following headings: mining and Aborigines, the nature of mining communities, the effects of mining on landscape, water pollution, tailings dumps and air pollution. Chapter 9 provides a history of Australia's relationship with uranium, from the first British efforts to build an atomic bomb until 1984. Chapter 14 discusses Australia's involvement in the area of nuclear proliferation and disarmament, outlining the Ranger Inquiry's findings on proliferation, the safeguards policy developed in 1977 and its subsequent modification in response to pressures from customer nations, changes in public opinion on the uranium issue, and the October 1984 ALP Caucus decision on uranium policy. The Report concludes that Australia should permit no new contracts for uranium supply and no extension or renewal of present contracts, and should prohibit the development of enrichment facilities and the storage of foreign nuclear waste in Australia.

150. JAMES, B., BORTON, D. AND GARTEN, P., 1977. URANIUM: THE REAL QUESTIONS, THE REAL COSTS, NORTHERN PERSPECTIVE, 1,12, pl2-18.

Outlines the major nuclear issues the authors believe the Australian public should consider before making any decision on the mining and export of uranium. Reviews the uranium debate so far, including the two Ranger Inquiry Reports and suggests that many people believe that not all the issues were in fact debated publicly or considered adequately. Reviews alternative energy sources which it is suggested must form an essential part of future debate on energy strategy and choice. Critically reviews the reasons commonly advanced for the development and use of nuclear power and Australian uranium, i.e. survival requirements in an energy-hungry world; the position

of nuclear-dependent countries; comparisons with other energy sources; technical difficulties of solar power; Australia's ability to impose nuclear safeguards; the profit motive, state of world markets and demand and competition for Australian uranium; and the economic benefits predicted for the Northern Territory. Identifies government desire for investment and revenue as the sole reason for a go-ahead for uranium mining and claims that economic benefits are not sufficient reason for 'the unprecedented moral and environmental risks' associated with the industry.

151. KEHER, L.H., 1978. URANIUM AND NUCLEAR ENERGY: A PERSPECTIVE, COMMONWEALTH PROFESSIONAL, 268, DECEMBER, p9-13.

The author, an AAEC scientific officer, outlines the function of the AAEC, describes the properties of uranium, compares Australian and world deposits, estimates Australian uranium export earnings, outlines the nuclear fuel cycle, and reviews worldwide nuclear power programmes. He also discusses establishment of radiation protection standards and exposure to background radiation, presents statistics in support of claims about the safety of the nuclear power industry, outlines those measures which it is claimed deal safely with the disposal of radioactive wastes from all stages of the nuclear fuel cycle, and compares plutonium with other dangerous substances arguing that it is feared only by those who 'know nothing about it'.

152. KEMENY, L.G., 1978. HAS AUSTRALIA A NUCLEAR FUTURE?, IN INSTITUTION OF ENGINEERS, AUSTRALIA, ENGINEERS: DEVELOPING A BETTER WORLD, ENGINEERING CONFERENCE PAPERS, p40-47.

Examines the factors contributing towards a world-wide energy crisis and an increasing demand for uranium. Presents a case for the inevitability of a growing use of the nuclear fuel cycle to meet energy demands for the next fifty to a hundred years. Makes a detailed assessment of a possible role for Australia in meeting the energy demands of the industrialised world and of developing countries. Considers possible areas of involvement for Australian industry and Australian engineers and scientists in the field of nuclear technology within the framework of a national energy policy.

153. KEMENY, L., 1981. FRUSTRATING PATH TO BECOMING WORLD'S BIGGEST, BULLETIN, 8 DECEMBER, p155-156.

154. KEMENY, L.G., 1981. A PERSPECTIVE ON A POSSIBLE SCENARIO FOR AUSTRALIA'S NUCLEAR FUTURE. PAPER TO 51st ANZAAS CONFERENCE, 'ENERGY AND EQUITY', BRISBANE, 24p.

Argues that the world faces an energy crisis so severe that no alternative exists but to greatly expand the nuclear power industry which, it is claimed, is safer than other power industries and involves risks to life considerably lower than those willingly accepted by human beings in every-day activities (e.g. driving cars, flying in aeroplanes). Argues that Australia should become more involved in the nuclear fuel cycle, eventually 'leasing' its uranium to overseas customers and itself carrying out every step of the fuel cycle except power generation; substantial benefits would accrue to Australia in economic terms and through its enhanced capacity to apply nuclear proliferation safeguards. Appendices summarise Australia's current safeguards policy and recent moves for the establishment of nuclear power plants in Australia.

155. KEMENY, L.G., 1981. THE ECONOMIC COMMONSENSE OF THE NUCLEAR FUEL CYCLE IN BOTH THE GLOBAL AND AUSTRALIAN SETTING, PAPER TO 51st ANZAAS CONFERENCE, 'ENERGY AND EQUITY', BRISBANE, 29p.

156. KEMENY, L.G., 1982. AUSTRALIA'S FIRST TWO NUCLEAR DECADES - A POSSIBLE ENERGY SCENARIO FOR THE 1980s AND 1990s, IN INSTITUTION OF ENGINEERS (AUSTRALIA), THE ENGINEERING CONFERENCE 1982: CHANGING SOCIETY, A CHALLENGE FOR ENGINEERING, NATIONAL CONFERENCE PUBLICATION NO. 82/1, INSTITUTION OF ENGINEERS, p80-90.

157. KEMENY, L.G., 1984. URANIUM FUTURE AT THE CROSSROADS, MINING MONTHLY, FEBRUARY, p12-13.

Outlines the current status of the Australian uranium industry and argues in favour of further and immediate expansion on the grounds that world levels of nuclear power capacity and production assure a demand for Australian uranium, that Australia has a moral obligation to supply energy deficient nations, that other major uranium producers are poised to corner the market, and that substantial economic benefits will accrue to Aborigines, the Northern Territory and Australia. Outlines the nuclear programmes of Australia's uranium customers and provides a brief explanation of uranium refining, concentration, and fuel fabrication.

158. KEMENY, L.G., 1985. IS THERE ANY FUTURE FOR A NUCLEAR INDUSTRY IN AUSTRALIA?, MINING REVIEW, DECEMBER, p1-8.

The author suggests that uranium is the only viable option for maintenance of mankind's increasing energy needs for at least the next five decades, and makes the case for increased Australian mining and export of uranium. Discusses various issues associated with uranium mining and nuclear power, including the rationale and recommendations of the May 1984 ASTEC report, economic and safety aspects of nuclear power generation, the state of Australian public opinion on uranium mining, the actual and potential contribution of uranium mining to Aborigines and to the Northern Territory and Australian economies, and future market prospects for uranium (which are considered favourable). Warns that Canada will increase its share of the world market at Australia's expense if domestic policies do not change, making future entry by Australia into the market very difficult.

159. KEMENY, L.G., 1986. AUSTRALIA'S WAR AGAINST THE ATOM, IN INSTITUTE OF ENGINEERS (AUSTRALIA), ENGINEERING CONFERENCE - ENGINEERS AS MANAGERS, NATIONAL CONFERENCE PUBLICATION NO. 86/1, INSTITUTION OF ENGINEERS AUSTRALIA, p152-162.

160. KEMENY, L.G., 1986. THE CASE FOR FULL-SCALE URANIUM MINING. BULLETIN, 21 OCTOBER, p42, 45.

Argues that nuclear power is both a necessary and widely accepted form of energy throughout the world, and that the Hawke government's decision to resume uranium shipments to France was based on commonsense and informed realism, not just financial expediency. Claims that Australia still lacks a well-informed, pragmatic policy for peaceful use of nuclear power and questions why government policy is not based on recently-commissioned (1984) reports dealing with Australia's role in the nuclear fuel cycle and of nuclear science and technology. Warns that government vacillation over nuclear development and over uranium mining and export will have undesirable outcomes, and argues that withholding of uranium by Australia or any action which prejudices Australian participation in IAEA surveillance would be highly irresponsible.

161. LOWE, I., 1984. THE URANIUM INDUSTRY IN AUSTRALIA, IN AUSTRALIAN STUDIES CENTRE, SOCIAL ISSUES IN THE 1980s, OCCASIONAL PAPERS NO. 4, UNIVERSITY OF QUEENSLAND, p17-55.

Presents a comprehensive review of the Australian uranium industry. Outlines its history, provides a

summary of the Fox Reports' conclusions and a retrospective consideration of how these need to be modified in the light of the altered circumstances of the nuclear industry, and discusses the problems of analysing a complex technology such as that employed by the nuclear industry. Examines changes in uranium policy within the ALP, and analyses the process involved and the implications of allowing the ALP leadership to promote the uranium industry against the wishes of party members. Predicts the continuing divisiveness of the uranium issue.

162. MACK., V., 1977. SEE NO EVIL, HEAR NO EVIL: WHY I AM FOR LIBRARY WORKERS AGAINST URANIUM MINING, AUSTRALIAN LIBRARY JOURNAL, VOL. 26, 18 NOVEMBER, p329-31.

163. MANNING, A. (COMPILER), 1977. URANIUM; A FAIR TRIAL, BOTH SIDES OF THE URANIUM DEBATE AS PRESENTED IN THE ALP DISCUSSION KIT, ALP, CANBERRA, 106p.

Brings together over 30 separate items on various aspects of the uranium debate, some of which summarise, or are extracts from, longer articles published elsewhere. The majority are written by academics, but there are also contributions by politicians, conservation groups, uranium mining companies and nuclear industry employees, and extracts from official inquiries. In summary they represent a wide spectrum of opinion. Issues which receive extensive treatment are safety, health and environmental aspects of nuclear plants, nuclear proliferation, the economic costs and benefits of uranium mining in Australia, and energy demand, alternative energy sources and energy conservation.

164. MARTIN, B., 1983. URANIUM - THE CASE AGAINST STAYS STRONG, CANBERRA TIMES, 14 SEPTEMBER, p16.

Reviews the main arguments raised against nuclear power and uranium mining, including environmental hazards; nuclear weapons proliferation; speculation about the economics of and the need for a nuclear power industry; alternative energy sources and improved energy efficiency and conservation; threats to civil liberties; Aboriginal rights; and 'unconvincing' government justifications for uranium exports. Observes that neither the Fraser nor Hawke governments have facilitated public or parliamentary debate on the issues as recommended by the Ranger Inquiries, and argues that the Labor cabinet's total disregard for ALP uranium policy reflects a worldwide trend of nuclear support from government elites and corporate

interests and opposition by concerned members of the community.

165. MELOUNEY, H.F., 1977. AUSTRALIA: THE URANIUM HOPE OF THE WORLD, ACOA JOURNAL, NO. 730, JUNE, p16-17.

Reviews the findings of the Rasmussen report, commissioned to research the worst possible accident that could happen at a nuclear power station and the likelihood of it happening, and argues in favour of the safety of nuclear power stations. Claims that nuclear power is the safest form of energy ever devised by man, and outlines benefits Australia will get from supplying uranium for the nuclear industry, and the cost to the nation of a two year moratorium on uranium mining. Believes fears about use of uranium for weapons are exaggerated, and claims that Australia's stringent safeguards demands will ensure peaceful use of its uranium.

166. MILLIKEN, R., 1976. URANIUM: A NUCLEAR DILEMMA, NATIONAL TIMES, 1-6 NOVEMBER, PART 1, 22-23, PART 2, 23, 26.

Examines who will profit from, and who may get hurt by, mining and export of Australian uranium. Reviews the Fox Report, points out that both Fox and the (UK) Flowers Report expressed concern about nuclear proliferation, and speculates about potential Australian uranium customers outside the NPT. Notes Sir Phillip Baxter's support for a nuclear armed Australia, domestic reprocessing and storage of nuclear waste. Lists the main protagonists in the uranium battle and outlines their viewpoints. Reviews recent and anticipated developments in world nuclear capacity, presents economic arguments for urgent exploitation of Australian uranium and reviews mining company involvement. Reports expert opinion on the hazards of uranium mining, nuclear reactors and radioactive waste, and presents Baxter's counterarguments in favour of developing Australia's nuclear capacity.

167. MOVEMENT AGAINST URANIUM MINING, 1984. SUPPLEMENT TO NEWSLETTER - URANIUM MINING IN AUSTRALIA, MAUM, SYDNEY, p1-8.

Describes what uranium is, how it is mined and the extent of Australia's reserves. The economic benefits of uranium mining are regarded as minimal, given the alternative uses of the capital involved, while its impact on the surrounding environment, on mineworkers' health, and on adjacent Aboriginal communities is believed to be inevitably negative. Safeguards agreements signed by Australia offer no certainty that

Australian uranium is not used in manufacturing nuclear weapons. A brief rundown of nine uranium projects is given, each preceded by a note on location, status, reserves and ownership, mining methods, production and contracts (where applicable).

168. MULLENS, P. AND FALK, J., 1978. URANIUM: WHAT'S HAPPENING NOW? [EXCERPTS FROM TWO ADDRESSES TO A PUBLIC MEETING ORGANISED BY MALVERN URANIUM MORATORIUM], LEARNING EXCHANGE, NO. 67, JULY, p18-19.

169. MYLONAS, J., 1977. A PUBLIC SERVICE BY THE AUSTRALIAN URANIUM PRODUCERS FORUM?, GROK, 10 AUGUST, p11.

Cites nuclear accidents, examples of radioactive waste leakage, Hiroshima and doubtful economic benefits for Australia in an argument against uranium usage. Argues that Australian students should support anti-uranium campaigns.

170. NSW COMMITTEE OF THE COUNCIL OF RESOURCES AND ENERGY, 1977. THE URANIUM DEBATE: ONE SIDE OF THE ARGUMENT, CATHOLIC WEEKLY, 5 SEPTEMBER, p12-13.

Presents a range of arguments in support of mining and export of Australia's uranium, and claims that the conditions for its sale recommended by the Fox Inquiry should satisfy all but the 'most paranoid' critics. Sees no practical alternative to nuclear energy as a successor to oil and gas. Argues that it is of particular importance to energy-poor developing countries, and that a refusal by Australia to export uranium would threaten their development and also put at risk Australia's own future energy supplies. Claims that the impact of the nuclear industry on the environment and on human health and safety compares favourably with that of other energy industries. Argues that much of the opposition to nuclear power 'borders on hysteria', and that many of the dangers outlined by anti-uranium groups are highly exaggerated.

171. RANN, M., 1982. URANIUM; PLAY IT SAFE, LABOR FORUM, 4, 1, SUPPLEMENT, p1-31.

Presents the main arguments supporting the ALP's current policy on uranium mining. Reproduces the ALP's Uranium Policy as approved at its 1979 National Conference. Reviews the world nuclear scene and finds a declining industry reflected in cancelled reactor orders, slumps in uranium mining profits, and uncertainty about the future of the Roxby Downs project. Examines worker safety in uranium mines, cites reports indicating the dangers of uranium

mining and expresses concern that strict safety measures are being ignored by some NT mineworkers. Notes that the South Australian Legislative Council Select Committee on uranium resources recommended that uranium mining should not proceed in South Australia because of the absence of adequate waste disposal techniques for high level radioactive waste and because of the inadequacy of international safeguards, and presents the committee's conclusions about worker safety at uranium mines and its recommendations for improvements. Critically reviews current waste disposal strategies, observes that no waste has as yet been permanently disposed of and attributes the ALP's adoption of its present 'play it safe' policy to concern over the safe disposal of nuclear waste. Discusses the issue of nuclear proliferation, claims that when there is a negotiating problem over safeguards, commercial considerations come first, and that there is clear evidence to show that the Fraser government's safeguards have been watered down and are inadequate. Presents the text of an interview with Walter Patterson, a nuclear physicist, in which he answers questions about the development of a uranium industry in South Australia. Discusses the implications of his findings for future ALP policy, for local government policy, and for personal action.

172. REEVES, P., 1977. URANIUM MINING MUST AWAIT PROOF THAT NUCLEAR ENERGY 100% SAFE, SEAMEN'S JOURNAL, VOL. 32, JULY/ AUGUST, p187-188.

Lists problems and hazards claimed to be associated with nuclear power, questions the motives of the non-Australian multinationals that stand to gain from exploitation of Australian uranium, speculates about the safety of nuclear fission and waste disposal technologies and the effectiveness of international safeguards, and argues that profit rather than diminishing energy resources is the basis of the present push for development of Australian uranium.

173. REYNOLDS, J.O., 1986. URANIUM FUELLED ELECTRICITY - AN AUSTRALIAN PERSPECTIVE, MINING REVIEW, SEPTEMBER, p1-9.

Reviews trends in electricity demand and in the growth, competitiveness and future of nuclear power, arguing that in the short term at least demand for nuclear energy will continue to grow significantly. Outlines world uranium resources and production, claims that reactor-related uranium requirements reveal market opportunities for Australian uranium, and argues that realisation of such opportunities depends upon political policies and social conditions in Australia. Reviews other economic considerations including

competition from other suppliers, capital expenditure on new mines, foreign exchange earnings and employment benefits. Reviews some non-economic considerations, of which nuclear waste disposal and weapons proliferation are believed to be the major concerns of Australians, argues that both issues are dealt with satisfactorily by the 1984 ASTEC Report, and claims that effective environmental protection measures are being used in all aspects of uranium mining operations.

174. RINGWOOD, A.E., 1980. NUCLEAR POWER IN PERSPECTIVE, RESEARCH SCHOOL OF EARTH SCIENCES, ANU, CANBERRA, 23p.

Discusses three issues seen as crucial to the nuclear power debate: radio-active waste disposal, reactor safety, and proliferation. Existing methods of waste disposal are seen as inadequate, but incorporation in SYNROC and storage in deep holes drilled in impermeable rock are held to offer a completely safe system of waste disposal and one readily understandable by laymen. (This latter consideration is regarded as crucial.) Whatever technology is used to generate power involves risks and consequent accidents, but to date the nuclear power industry has proved itself safe relative, for example, to coal-based power generation. Ringwood is nevertheless critical of the nuclear industry's attitude to safety, accusing it of complacency, and arguing that significant improvements could be made in siting, design and staffing of generators. The possibility of nuclear proliferation is extremely serious, but because nuclear technology is already widely dispersed a moratorium on nuclear power would not remove it. Any decision not to export Australian uranium would have little impact on international markets, and Australia would lose any influence it might otherwise have at international levels. Australia should involve itself in every stage of the nuclear fuel cycle, leasing fuel rods to consumers, thus allowing it to retain close control over uranium originating in Australia and so helping to solve the proliferation problem.

175. RINGWOOD, A.E., 1983. AUSTRALIA'S URANIUM AND THE INTERNATIONAL NUCLEAR INDUSTRY, AUSTRALIAN ACADEMY OF SCIENCE, AUSTRALIAN GEOSCIENCE COUNCIL SYMPOSIUM, CANBERRA, 25p.
176. ROBERT, J., 1977. EMOTION, FEAR CAMPAIGNS PROBLEM IN URANIUM DEBATE, SEAMEN'S JOURNAL, VOL. 32, JULY/AUGUST, p180.
177. ROBERTSON, J., 1983. AUSTRALIA'S ROLE AS A URANIUM SUPPLIER [MINISTERIAL STATEMENT BY THE NORTHERN

TERRITORY MINISTER FOR MINES AND ENERGY, 20 OCTOBER 1983], SOUTH AUSTRALIAN BUILDER, 61, 1/2, p8-10, 34.

Examines the impact of Australia's possible withdrawal as a world uranium supplier, with particular reference to the NT. Claims that Australia's stringent conditions of use demonstrate the concern of mining companies and government for peaceful and environmentally safe use of nuclear power. The author believes that Australia would also adopt the safest technology for nuclear waste disposal. Presents a case for Australia's continued position as a world uranium supplier, based upon the claim that only as a supplier can Australia exert any influence on nuclear proliferation, peaceful and beneficial use of nuclear energy, and 'reasonable' nuclear waste disposal. Although a predicted uranium shortfall in the 1990s would assure demand for NT uranium, the mining companies are reluctant to commit funds without government approval for NT mines. Given these arguments and taking into account the timescale involved in initiating uranium production, it would be logical for the Commonwealth to grant approval for NT mines to export uranium now rather than relying on the future output of Roxby.

178. ROBOTHAM, F.P.J., 1977. SOME OBJECTIONS TO NUCLEAR ENERGY, COMMONWEALTH PROFESSIONAL, DECEMBER, p14-17.
179. ROBOTHAM, F.P.J., 1979. A CASE AGAINST URANIUM MINING AND NUCLEAR POWER, IN HENDERSON, I. (ED), ENERGY POLICY IN AUSTRALIA: PROCEEDINGS OF A SYMPOSIUM HELD AT GRIFFITH UNIVERSITY, SCIENCE POLICY RESEARCH CENTRE, GRIFFITH UNIVERSITY, BRISBANE, p77-90.

Presents a case against uranium mining and nuclear power based on radiological hazards which the author states are associated with aspects of the nuclear fuel cycle. Claims that the problems of radon exposure of uranium miners and radon releases from tailings dumps are essentially management problems. Reviews nuclear reactor accidents, nuclear waste management strategies and demand for nuclear power. Recommends a five-year moratorium on mining and export of uranium to allow for full consideration of the issues it raises.

180. ROWLEY, K., 1977. NUCLEAR MADNESS, INTERVENTION, NO. 9 OCTOBER, p6-29, 53.

Outlines the main technical and economic problems involved in nuclear power generation, and identifies forces which the author claims are 'foisting' nuclear power upon the world. Reviews the history of Australian uranium mining and events leading to the

establishment of the Ranger Inquiry. Questions who are the real beneficiaries of uranium mining, and whether it is a significant stimulus to employment. Critically reviews enrichment schemes, the operation of nuclear reactors, and research into consequences of reactor accidents (describing two actual incidents). Considers reprocessing, and the danger of plutonium, radioactive wastes, and transport of radioactive materials. Discusses the 'real' cost effectiveness of nuclear power, and claims failure by advocates of the 'alternative energy' approach to recognise the significance of 'vested interests' which have built up around nuclear power in preventing the development of a 'soft' energy utilisation path. Reports that opinion polls indicate a decline in public support for uranium mining, and expresses his hope that a concerted anti-nuclear campaign can defeat the pro-uranium factions whose policies he regards as both irresponsible and avaricious.

181. RYAN, R, 1977. URANIUM MINING AND ITS ALTERNATIVES, NORTHERN PERSPECTIVE, 1,12, p7-11.

Examines the moral issues at stake in developing an Australian uranium industry. Discusses the safety of nuclear reactors and makes a favourable comparison with coal-fired power stations. Reviews the feasibility of solar, wind, geothermal and fusion power, advocates energy conservation, and concludes that industrialised nations are faced with the choice of coal or nuclear waste and terrorist threats. Disagrees with the view that withholding of Australian uranium will decrease the threat of proliferation, stating that it will only bring forward the development of fast breeder reactors. Concludes that nations will need to bridge the energy gap by joint utilisation of coal and fission and believes Australia should help by supplying uranium.

182. SADDLER, H., 1977. FRASER, CARTER AND THE URANIUM MARKET, INTERVENTION, NO. 9, OCTOBER, p30-42.

Examines the outlook for nuclear power, discusses reasons for the recent decline in expected capacity, compares uranium demand for the reduced nuclear programme with likely production capacity of uranium mines, and predicts considerable overproduction in the 1980s. Critically reviews both United States President Carter's policy to prevent nuclear weapons proliferation, and Australian Prime Minister Fraser's use of this policy in justification of uranium exports. Examines government statements on non-proliferation, reprocessing and waste disposal and describes them as a 'morass of contradictions and confusions'.

Concludes that no potential uranium importer needs Australian uranium before 1985 and proposes delaying a decision to export for a few years; capital could be more profitably invested in non-mining alternatives since uranium export revenue seems certain to be lower than currently assumed, while a decision to export will increase the risk of nuclear weapons proliferation since international detection procedures appear inadequate. Points out that the Ranger Inquiry Report also recommended delay, and claims that all the arguments point to delay as the best alternative, as opposed to the government's intention to export immediately. Outlines the outcomes of a decision to withhold Australian uranium, which it is claimed would be a severe blow to the world nuclear industry.

183. SADDLER, H., 1980. AUSTRALIAN URANIUM - THE ENVIRONMENTAL ISSUES, IN HARRIS, S. AND KEICHI, O. (EDS) AUSTRALIA AND JAPAN; NUCLEAR ENERGY ISSUES IN THE PACIFIC, AUSTRALIA-JAPAN ECONOMIC RELATIONS RESEARCH PROJECT, CANBERRA. p58-71.

Considers environmental and other issues relating to Australian uranium, reviews changes in the emphasis of the uranium debate, and suggests that employment, foreign investment and domestic energy policy issues will become important issues in that debate. Reviews the circumstances which led to the setting up of the Ranger Inquiry, its terms of reference, conduct and recommendations, and the Fraser government's safeguards policy and its decision to proceed with uranium mining. Argues that the problem of nuclear waste disposal has not been dealt with satisfactorily. Reviews the ALP uranium policy adopted in 1977, speculates on the effects of developments in the world nuclear power industry on future ALP policy, and considers the influence of trade unions on uranium mining and export. Examines Fox's recommendations for environmental control and the arrangements actually put into effect. Cites claims about Roxby Down's major economic boost for an ailing South Australian economy, and discusses the South Australian government's tactic of making the uranium industry into a development issue to embarrass their political opponents and defuse concern with unemployment. Notes foreign involvement in uranium, and environmentally-based opposition to development of enrichment capacity.

184. SHEA, L., 1977. WA AND URANIUM MINING, GROK, VOL. 10, AUGUST, p11.

Presents three short articles, two of which are annotated elsewhere (see No. 497). The third cites

nuclear accidents, examples of radioactive waste leakage, Hiroshima, and doubtful economic benefits for Australia in an argument against uranium usage. Argues that Australian students should support anti-uranium campaigns.

185. SMITH, T., 1983. AUSTRALIA'S NUCLEAR FUTURE: A POLITICAL AND ADMINISTRATIVE ARENA OF COMPLEXITY, UNCERTAINTY AND CONTROVERSY, IN KOUZMIN, A., PUBLIC SECTOR ADMINISTRATION: NEW PERSPECTIVES, LONGMAN CHESHIRE, MELBOURNE, p200-231.
186. SPENCER, A., SUTER, K. AND WALKER, C., 1985. URANIUM: RESOLUTION AND STATEMENT OF THE MAY 1985 ASSEMBLY OF THE UNITING CHURCH IN AUSTRALIA, UNITING CHURCH IN AUSTRALIA, SYDNEY, 63p.

Walker presents an introduction to the Statement on Uranium by the Uniting Church's Standing Committee (now Commission on Social Responsibility and Justice) and explains why uranium has been chosen as an issue for discussion within the community and the Committee's decision to put forward the case by which the issue should, in his opinion, be judged.

Spencer argues that it is not nuclear technology that should be feared but the economic, political and social systems under which it is applied and the changes it will bring about to peoples' lives. He discusses the major concerns of the Standing Committee and argues that its case for a moratorium rests on a faulty assessment of nuclear power, that the Uniting Church should distinguish between nuclear power's peaceful and destructive role, and calls for a withdrawal of the Committee's recommendation.

Suter argues in favour of the Assembly's Resolution and Statement and 'urges caution in Australia's uranium mining'. Discusses two main areas of concern - the spread of nuclear weapons and the threat to civil liberties. Critically reviews the effectiveness of international controls over nuclear material, warns that it is not a safety net that Australian uranium producers should rely on, and argues that on these grounds Australia should suspend uranium mining. Discusses some implications for civil liberties arising from the uranium issue, claiming they undermine many basic human rights.

Appendices contain the May 1985 Assembly Resolution and Statement on Uranium, the September 1985 Standing Committee (Commission) Resolution and a copy of the NPT.

187. SPRINGELL, P., 1976. AUSTRALIAN URANIUM POLITICS, ECOLOGIST, VOL. 6, OCTOBER, p280-283.

Claims that the Australian government and commercial interests are uncertain as to whether and when to proceed with uranium mining and enrichment in Australia, due to uncertainty regarding development of breeder reactor technology which will determine uranium demand and prices. Reports on the change in opinion among the public and within the ALP which led the Labor government to establish the Ranger Inquiry and the Fraser government to try and bring it to a close. Discusses the secret Mary Kathleen files 'leaked' to Friends of the Earth, particularly the revelation of a uranium price-fixing cartel which included Australian suppliers. Alleges that the Fraser government is determined to mine uranium whatever the findings of the Ranger Inquiry; its involvement in uranium deals with Japan, the Soviet Union and France are reviewed. Outlines trade union opposition to uranium mining, and its effects upon exports and fulfilment of contracts. Discusses the impact of mining on Aboriginal communities and Kakadu National Park, and summarises the moral issues which face Australia in deciding whether or not to mine uranium.

188. SUTER, K.D., 1978. THE URANIUM DEBATE IN AUSTRALIA, WORLD TODAY, VOL. 34, JUNE, p227-235.

Reviews the history of the Australian uranium industry and the policies of successive governments on nuclear power and uranium mining. Describes the establishment of the Ranger Inquiry, assesses its findings, and suggests that ALP, trade union and conservationist opposition to uranium may well restrict future mining, despite the Fraser government's go-ahead for mining and export. Examines the threat of nuclear weapons proliferation, assesses the three key elements in the Fraser government's safeguards policy, and Australia's international responsibilities as the possessor of large uncommitted uranium reserves.

189. SYKES, T., 1977. URANIUM: AUSTRALIA V THE WORLD, BULLETIN, 4 JUNE, p67-72.

Discusses the economic implications of an indefinite delay in mining and exporting Australian uranium. Reviews known world uranium reserves, and notes that their large size, high grade and relatively cheap mining costs make Australian deposits very competitive by world standards. Makes a case for an immediate go-ahead for mining and export of Australian uranium based largely upon the following grounds: withholding of

Australian uranium will foster the development of fast breeder reactors; other nations such as South Africa will reap the rich financial profits that could be Australia's; markets are currently available as consumer nations are tending to stockpile uranium and are keen to diversify their supply source; mining costs continue to escalate, making mining less profitable as time goes on; and Canada, Australia's most serious competitor, is rapidly developing its uranium resources. Warns that although nations are keen to buy Australian uranium, there is a limit to how long they will wait for it.

190. SYMONDS, J.L. ET AL, 1983. NUCLEAR ENERGY, IN INSTITUTION OF ENGINEERS, AUSTRALIA, ENERGY 83: TOWARDS AN ENERGY POLICY FOR AUSTRALIA: POSITION PAPERS, CANBERRA, p236-48.

Provides data (drawn mainly from AAEC and OECD/IAEA sources) on trends in the use of nuclear power, on capital and operating costs for various stages of the nuclear fuel cycle, on uranium resources and future requirements, and on employment in operating and planned uranium projects in Australia (an appendix provides information regarding costs and time-scales for development of major projects). Reviews developments relating to a number of Australian projects, to environmental assessment of uranium mining, to disposal of radio-active wastes, and to proposals for establishing conversion and enrichment facilities in Australia. Takes the view that existing technologies offer a solution to the environmental and waste disposal problems associated with uranium mining and processing.

191. THOMPSON, G.H., 1978. THE NUCLEAR DEBATE, AUSTRALIAN PHYSICIST, VOL. 15, AUGUST, p99-103.

Discusses the implications of nuclear technology and mankind's ability to deal safely with the increased knowledge it embodies. Gives an historical overview of atomic research up to 1930, the discovery and importance of nuclear fission, and the development of nuclear fusion and plutonium reactors, and explains how the development of fast breeder reactors will reduce uranium demand, with obvious implications for Australia. Reviews the work and recommendations of international nuclear safeguards organisations such as the International Commission of Radiological Protection (ICRP) and the IAEA, but notes the inadequate provision for safeguards checks at Ranger, where the government is largely responsible both for implementation of safeguards and for operation of the project. The techniques and problems of nuclear waste disposal are

discussed, including the possible diversion of plutonium into nuclear weapons production.

192. TITTERTON, E., 1975. URANIUM, ENERGY AND THE FUTURE, A SUBMISSION TO THE RANGER ENVIRONMENTAL INQUIRY, INSTITUTE OF ADVANCED STUDIES, AUSTRALIAN NATIONAL UNIVERSITY, CANBERRA, 24p.

Argues in favour of uranium and nuclear power as an important energy source during the next century, and considers a number of aspects of the uranium industry (including the mining and treatment of uranium ore, and the way in which the Ranger project has dealt with the problems of radon gas and radioactive tailings). Discusses the effects of pollution from burning fossil fuels, and the potential of fusion power. Refutes claims that levels of radiation from controlled nuclear reactions are dangerous and makes a favourable comparison with naturally encountered sources of radiation. Assesses the safety record of the nuclear power industry and argues that estimates of the effect and probability of a nuclear accident make those risks quite acceptable in comparison with other risks such as flying. Presents uranium resource figures for the non-communist world and compares those with Australian resources.

193. TITTERTON, E., 1979. NUCLEAR POWER AND THE ANTI-URANIUM MOVEMENT: A MODERN SOCIAL PROBLEM, ANU-P/740 JANUARY, CANBERRA, 21p.

Discusses why some people may oppose the development of nuclear power. Admits that the demands of anti-uranium lobbies for inquiries, additional information, environmental impact statements and tightened licensing arrangements have led to a slowing down of nuclear power station development. Divides the opposition into those genuinely opposed to nuclear power but open to logical argument, and those who are implacably opposed, and attempts to answer the latter's arguments. Claims that man has demonstrated his capacity to control nuclear energy and that accidents are more likely to happen in other walks of life, that the use of nuclear power will be strictly controlled for the benefit of mankind, and that development of uranium mining in the NT can be orderly and controlled as recommended by the Fox Report and can benefit Aborigines. Contrasts the age, expertise, and ideals of the people and personalities comprising the pro- and anti-nuclear groups, claims that the pro-nuclear lobby can count on its side most of the pre-eminent nuclear scientists, engineers and experts in other allied subjects, and a large majority of the world's political leaders. Describes the reactions of a third group - the vast

majority of the population - and expresses concern about the apparent lack of knowledge among the public about energy questions in general and the nuclear option in particular and about the absence of public debate or interest in nuclear issues. Reviews some international views on the development of nuclear power. Argues in favour of accepting and developing nuclear power to raise and equalise standards of living throughout the world, and assist underdeveloped nations retain access to and derive benefits from fossil fuels for longer than would otherwise be the case.

194. TITTERTON, E., 1980. URANIUM AND THE ENERGY FUTURE, AUSTRALIAN MINING, 72, 2, p34-38.
195. TITTERTON, E.W. AND ROBOTHAM, F.P., 1979. URANIUM, ENERGY SOURCE FOR THE FUTURE? THE CASE FOR, THE CASE AGAINST, THOMAS NELSON IN ASSOCIATION WITH THE AUSTRALIAN INSTITUTE OF INTERNATIONAL AFFAIRS, MELBOURNE, 197p.

Presents detailed arguments for (by Titterton) and against (by Robotham) uranium mining and nuclear power. The case for covers nuclear energy and world energy requirements, world energy resources, radioactivity and radiation, the present state of the nuclear power industry, pollution and the environment, public health and safety, alternative energy technologies, plutonium and the fast breeder system, nuclear waste management and disposal, and proliferation and terrorism. Concludes with a discussion on Australia and uranium, arguing that the mining industry is of vital economic importance to the nation in terms of export sales and employment opportunities, that Aboriginal interests will be protected, and that uranium mining and milling techniques used in Australia are properly regulated and safe.

The case against argues that a decision to mine and export uranium should not be based solely upon Australian considerations but should encompass global nuclear issues. Discusses radiation hazards, radioactive waste disposal and the plutonium economy, uranium and proliferation, and the economics of nuclear power. Reviews the effects of uranium mining on the environment and Aboriginal people, and health and safety aspects of the uranium industry. Discusses energy conservation and the role social goals and national growth strategies play in determining energy demand. Believes that a decision not to mine uranium would signal Australia's intention to avoid the hazards and dangers associated with nuclear power to the rest of the world.

196. TRANSPORT WORKERS UNION (QUEENSLAND BRANCH), 1978. URANIUM POLICY: WHY IT DESERVES YOUR SUPPORT, TWU, BRISBANE, 16p.

Outlines the uranium policy of the Transport Workers Union, and explains opposition to uranium mining, based on the Fox Reports. Briefly explains the nature of radiation, and reviews a wide range of issues relevant to the uranium debate, including world energy supply and demand, coal reserves, solar energy and energy conservation, radio-active waste disposal and reprocessing, nuclear weapons proliferation, safeguards for use of Australian uranium, economic considerations, uranium and Aboriginal land rights, and the Atomic Energy Act 1953 and civil liberties.

197. URANIUM ADVISORY COUNCIL, 1982. URANIUM MINING AND MILLING, AGPS, CANBERRA, 26p.

Outlines uranium's historical background, its occurrence, properties, economic availability and price, Australia's uranium mining history, the processes involved in development of uranium mines, and associated hazards and risks. Provides a justification for uranium's use in power generation, on the grounds that world energy demands, escalating costs of oil, petroleum and use rationalisation and a lack of domestic coal or oil deposits in certain industrial nations makes nuclear power a viable and necessary alternative. Includes a short bibliography on the effects of low-level radiation.

198. URANIUM BOOK COLLECTIVE, 1983. THE NUCLEAR ENVIRONMENT, A HANDBOOK ON NUCLEAR POWER FOR SCHOOLS AND THE COMMUNITY, MAUM/FOE, MELBOURNE, 112p.

Sets out to explain the basic processes involved in the nuclear industry and the meaning of terms used in discussing it, and to address key questions raised by its operations, for example regarding the safety of nuclear reactors, radiation, and the connection between nuclear power and nuclear weapons. Chapter 1 deals with the history of nuclear power, Chapter 2 with the nature of uranium and the processes involved in atomic fission and fusion, and Chapter 3 with the nuclear fuel cycle. Chapter 4 discusses uranium mining. It briefly outlines its history in Australia and discusses the processes involved in mining and milling. It argues that the positive economic impact of uranium mining is very limited because it is capital intensive, imports much of the equipment it uses, and generates little net revenue for government. Claims that uranium mining and associated urban development represents a serious threat to the natural environment, especially in Kakadu

National Park, and will continue to do so after mining ceases due, for example, to release of contaminants from tailings. Reports that Aborigines expressed considerable disquiet to the Fox Inquiry regarding the adverse social effects of uranium mining. Discusses mortality among uranium mine workers, arguing that substantial evidence exists to link a high incidence of lung cancer with work in uranium mines. Chapter 5 deals with uranium enrichment, outlining proposals for enrichment in Australia, while Chapter 6 deals with nuclear power stations. Chapter 7 deals with reprocessing of spent fuel and waste disposal, Chapters 8 and 9 with radioactivity and ionising radiation and health and Chapter 10 with energy choices and their social implications.

199. URANIUM INFORMATION CENTRE, [1977]. URANIUM: ENERGY SOURCE FOR THE NEXT DECADE AND BEYOND, UIC, MELBOURNE, 23p.

Argues that the world faces a serious energy shortage, that 'alternative' energy sources cannot fill the gap in the foreseeable future, and that uranium consequently represents an indispensable source of energy. Describes the operations of a nuclear power plant in non-technical terms, and argues that nuclear power is safe, reliable and economical, that nuclear wastes can be safely disposed of, and that use of uranium in power reactors will not encourage weapons proliferation both because of international safeguards and because weapons manufacture and the generation of nuclear power embody quite different technologies. Claims that the overwhelming weight of 'expert opinion' supports the use of nuclear energy.

200. URANIUM INFORMATION CENTRE, 1985. AUSTRALIA'S URANIUM, THE CASE FOR MINING AND EXPORT, UIC, MELBOURNE, 88p.

Presents an outline of the Australian uranium industry, of uranium's use throughout the world for power generation, and of Australia's potential to participate as a supplier. Claims that the industry provides significant economic benefits to Australia, and that opportunities exist for Australian mines to secure uranium supply contracts with existing power stations especially in the United States. Outlines the nuclear fuel cycle and attempts to correct some 'misconceptions' concerning nuclear safety issues. Compares fuel consumption and waste production for fossil fuel and nuclear power electricity generation, outlines the management of high-level radioactive waste, and claims nuclear power has a good record of industrial and radiation safety and is

environmentally less damaging than fossil fuels. Explains Australia's safeguards regime, justifies uranium export on the grounds that its use is strictly controlled and that as a supplier Australia can influence international nuclear issues, and claims that export of Australian uranium will not contribute to nuclear weapons proliferation. Includes a glossary of terms and a list of signatories to the NPT.

201. URANIUM INFORMATION CENTRE, 1985. WORLD URANIUM UPDATE, UIC, MELBOURNE, 14p.

202. WARD, B., 1979. URANIUM MINING AND NUCLEAR POWER: SOCIAL AND ECONOMIC ASPECTS, IN HENDERSON, I. (ED), ENERGY POLICY IN AUSTRALIA: PROCEEDINGS OF A SYMPOSIUM HELD AT GRIFFITH UNIVERSITY, SCIENCE POLICY RESEARCH CENTRE, GRIFFITH UNIVERSITY, BRISBANE, p91-98.

Examines several aspects of the economics of nuclear power and outlines the major global and national arguments for and against the mining and export of Australian uranium. Considers the problems associated with disposal of high level radioactive waste and the links between nuclear power and proliferation. Discusses the economic benefits claimed by pro-uranium lobbyists and briefly considers environmental and social problems created by uranium mining.

203. WATTERS, R.A. AND CHANDRA, S., 1986. AN INTEGRATED MANAGEMENT PROGRAM FOR THE NUCLEAR POWER INDUSTRY - A RESPONSIBLE APPROACH, RADIATION PROTECTION IN AUSTRALIA, 4, 2, p64-74.

Suggests a scheme designed to minimise risks associated with the nuclear fuel cycle (particularly waste products), transportation of radioactive materials, nuclear weapons proliferation, and terrorism. Argues that the full nuclear fuel cycle could take place in the Northern Territory, ensuring that Australia could reprocess its own uranium and manage the waste produced from it, and in concert with the IAEA could have de facto control of much of the world's nuclear fuel cycle. Provides reasons why the Northern Territory would be the logical location for an integrated nuclear fuel industry, and suggests that two spin-offs, a Darwin-Alice Springs rail link and a Territory University, would result from the industry.

204. WHYTE, J.P., 1977. HEAD NOT HEART: WHY I AM AGAINST LIBRARY WORKERS AGAINST URANIUM MINING, AUSTRALIAN LIBRARY JOURNAL, VOL. 26, 18 NOVEMBER, p326-8.

205. WILLIAMS, H. [COMPILER], 1981. LITTLE ATOM, THE MINATOMO CASE: A FRENCH URANIUM MINE IN QUEENSLAND?,

WOMEN'S INTERNATIONAL LEAGUE FOR PEACE AND FREEDOM,
QUEENSLAND, 19p.

Considers the implications of granting a uranium mining lease near Townsville to French-owned company Minatome, critically reviews French involvement in nuclear activities in French Polynesia, Namibia, Australia and France itself, discusses anti-nuclear campaigns in Europe and the Pacific Region and makes suggestions for future action, particularly by women's organisations. Examines the structure and multinational interests of Minatome and its parent companies, outlines evidence of French interest in establishing enrichment plants in Australia, reports concern of residents about prospective nuclear developments in the Townsville area, describes as evasive the Queensland government's negotiations with French interests, and claims that there is no way of controlling the destination of Australian uranium under the EURATOM treaty or any safeguards agreements.

Cross References

33, 241, 280, 282, 283, 288, 359, 376, 396, 402, 403,
404, 410, 411, 414, 540, 561, 562, 571, 599, 683, 694,
700, 722, 762, 765, 770, 784

PART THREE

URANIUM POLICY

Commonwealth Government Policies

206. ANON., 1977. FEDERAL GOVERNMENT MOVES CLOSER TO URANIUM GO-AHEAD, ENERGY, VOL. 4, MARCH, p6-7.

207. ANON., 1983. URANIUM, ENERGY (CANBERRA), 11, 12, p8-12.

Reports that the ALP Caucus accepted the Hawke Cabinet decision to grant approval for Roxby Downs and for further new contracts for the Ranger and Nabarlek uranium mines, but that there is still some opposition to these policies within the ALP. Comments on the ACTU's reaction to the Caucus vote. Briefly considers both sides of the nuclear waste disposal debate, and outlines the terms of reference of the ASTEC Inquiry. Reports that the government has dissociated itself from the Uranium Enrichment Group of Australia (UEGA) enrichment feasibility study and has abolished the Uranium Advisory Council. Refers to the major Australian uranium deposits and their economic potential, and discusses the issue of Kakadu National Park and the implications of a mining embargo for Aborigines in the Alligator Rivers Region.

208. ANON., 1986. JABILUKA, PANCON AND THE CRAZY ELECTORAL FACTOR, RYDGES, 59, 12, p112.

209. AARONS, B., 1977. COMMENT: URANIUM AND AUSTRALIAN POLITICS, AUSTRALIAN LEFT REVIEW, NO. 61, SEPTEMBER, p1, 35.

210. ANTHONY, J.D., 1978. URANIUM EXPORT POLICY, ATOMIC ENERGY IN AUSTRALIA, VOL. 21, JULY, 12-15.

Statement by Doug Anthony, Deputy Prime Minister and Minister for Trade and Resources, to the Australian House of Representatives (1 June 1978) outlining the nature of regulation and control to be exercised by the government over uranium export marketing. Defends the government's uranium policy which he claims was based on the findings of the Ranger Inquiry and protects the environment and Aboriginal welfare. Argues that Australia must play an important role in the non-proliferation regime while recognising its obligation as a major supplier of uranium for peaceful purposes.

211. AUSTRALIAN INSTITUTE OF ABORIGINAL STUDIES, 1981. COMMONWEALTH GOVERNMENT INVOLVEMENT IN THE ALLIGATOR RIVERS REGION OF THE NT: KNOWLEDGE DIRECTORY, AIAS, CANBERRA, 97p.

Outlines the history of the Alligator Rivers Region, focusing particularly on external influences on its Aboriginal communities. Lists Commonwealth Departments and agencies which have dealings in the Region, describes various co-ordinating bodies, discusses government activities and their co-ordination in relation to the authorisation of the Ranger Project and reviews the Commonwealth's long-term role in the Region.

212. BENTON, M., 1977. BONANZA AHEAD FROM URANIUM, AUSTRALIAN MINER, VOL. 4, p3, 14.
213. BOWEN, L., 1986. NUCLEAR ISSUES: AUSTRALIA-SWITZERLAND AGREEMENT ON PEACEFUL USES OF NUCLEAR ENERGY, AUSTRALIAN FOREIGN AFFAIRS RECORD, 57, 6, p523-525.
214. CAMILLERI, J., 1978. THE POLITICS OF URANIUM MINING, ISSUES 1977, NO. 59, DEPARTMENT OF CONTINUING EDUCATION, UNIVERSITY OF ADELAIDE, p52-60.

Claims that the Fraser government's policy on mining and export of uranium is both hypocritical and deceptive and ignores a number of the Fox Inquiry's recommendations, such as the necessity for public discussion on the subject, the relationship between the nuclear industry and nuclear weapons proliferation, and the unresolved problem of nuclear waste disposal. Questions the economic benefits to the nation of a go-ahead when the world nuclear industry is at such a low ebb. Discusses the ALP's change of heart on uranium and argues that an anti-uranium stance is seen as a vote-winning policy whilst in opposition. Reviews Hawke's role in moderating trade union uranium policy. Expresses scepticism about the future of the government's uranium policy in the face of economic obstacles and political resistance.

215. CLARK, A., 1974. URANIUM: THE RANGER DECISION IS CRUCIAL TO CANBERRA'S POLICY, NATIONAL TIMES, 15-20 JULY, p20.
216. CLARK, A., 1976. URANIUM: THAT'S WHY THE LIBS ARE AFTER DOUG ANTHONY, NATIONAL TIMES, 10-15 MAY, p14-15.

Comments on the evident split in the ranks of the Liberal/NCP government on uranium policy, between Doug

Anthony, Minister for National Resources and the Treasurer, Philip Lynch. Identifies and discusses the key issues: a recent cabinet decision to insist on 75 per cent Australian equity in all uranium developments, and differences in opinion about the speed and method of uranium development.

216A COMMONWEALTH OF AUSTRALIA, 1977. URANIUM - AUSTRALIA'S DECISION, COMMONWEALTH GOVERNMENT PRINTER, CANBERRA, VARIOUS PAGINGS. See text, p20-21.

217. CONNOR, R.F.X., 1974. NORTHERN TERRITORY URANIUM, AUSTRALIAN FOREIGN AFFAIRS RECORD, VOL. 45, NOVEMBER, p740-743.

A statement by the Minister for Minerals and Energy outlining the Commonwealth government's programme for development of NT uranium resources. Reviews the history of government involvement in the uranium mining and nuclear energy industries. A predicted world shortage of uranium combined with the extent of the NT deposits has prompted the government to formulate a 'clear and responsible' uranium policy. Details the proposed uranium development programme and the role of the Australian Atomic Energy Commission as agent for the government. Discusses the development of the Ranger, Nabarlek and Koongarra deposits, and government provision for protection of Aboriginal interests and Kakadu National Park. Outlines government policy on existing and future sales contracts, and the financial benefits which will accrue to mining companies, emphasises that the government will be responsible for all future uranium exploration in the NT and for the overall development of such an economically and strategically important resource.

218. DEPARTMENT OF TRADE AND RESOURCES, 1980. AUSTRALIA'S MINERAL RESOURCES: URANIUM, AGPS, CANBERRA, 14p.

Explains the rationale behind the government's decision to go ahead with mining and export of uranium, including an outline of the government's nuclear safeguards policy, and the legislative framework for uranium development. Describes the phases of exploration, major Australian uranium deposits, and the status of uranium mining developments. Discusses Australian uranium enrichment proposals.

219. ENGLISH, D. AND DOHERTY, J., 1979. URANIUM PART 2: CERTAINTY OF THE NUCLEAR FUTURE, ADVERTISER, 24 APRIL, p4.

220. FISK, B., 1978. AUSTRALIAN URANIUM TODAY, IN SPRIGGS, M.J. AND CASTEEL, K.D. (EDS), URANIUM SUPPLY AND DEMAND, URANIUM INSTITUTE, LONDON, p95-103.

Outlines the extent and value of Australia's uranium resources, provides a brief introduction to the Alligator Rivers Region, and comments on the Fraser government's go-ahead for uranium mining and export, the memorandum between the AAEC and the Ranger joint venturers, public reaction to the government's decision, Labor Party and trade union attitudes and industrial relations. Deals briefly with legislation arising from the government's decision, comments on some examples of opposition to the decision, and predicts a steady growth in uranium mining in Australia.

221. FISK, B., 1985. AUSTRALIAN URANIUM MINING POLICY, IN URANIUM INSTITUTE, LONDON (ED), URANIUM AND NUCLEAR ENERGY, PROCEEDINGS OF 9TH INTERNATIONAL SYMPOSIUM HELD BY THE URANIUM INSTITUTE, LONDON, 5-7 SEPTEMBER 1984, URANIUM INSTITUTE, LONDON, p162-171.

Favourably reviews Australia's uranium policy, and discusses two areas of uncertainty associated with it, the future of the Australian uranium mining industry as a whole and the policy of the government in relation to new uranium mines. Admits that government inquiries, public debates and dissent within the ALP have led to uncertainties about the uranium industry, but argues that inquiries are part of the normal system of checks and balances in a democratic society, that media coverage has focussed on conflict rather than consensus, and that the ALP had in fact amended its policy platform in line with the Hawke government decisions. Argues in favour of the Hawke government's three mine policy and provides the text of the ALP platform on uranium (carried at the 1984 ALP National Conference) in an appendix.

222. FREEMAN, P., 1977. WHY THE URANIUM DECISION WAS BAD FOR THE AIDC, NATIONAL TIMES, 5-10 SEPTEMBER, p54-55.
223. GOTTLIEBSEN, R., 1976. MARY KATHLEEN IS A BITTER LESSON FOR ANY GOVERNMENT, NATIONAL TIMES, 13-18 SEPTEMBER, p65-66.

Presents a detailed review of Commonwealth involvement in the recommissioned Mary Kathleen uranium mine, and the mines ensuing operational and financial problems.

224. GREY, A.J., 1977. CURRENT AUSTRALIAN URANIUM POSITION, IN URANIUM INSTITUTE (ED), URANIUM SUPPLY AND DEMAND: PROCEEDINGS OF THE SECOND INTERNATIONAL SYMPOSIUM ON URANIUM SUPPLY AND DEMAND, MINING JOURNAL BOOKS LTD AND THE URANIUM INSTITUTE, LONDON, p212-220.

Reviews the current status of the Australian uranium industry, argues that the 'state of paralysis' experienced by the industry has been due to negative attitudes in Australia towards uranium development, but reports that there are signs that the Australian government is about to change this situation. Discusses the findings and recommendations of the Second Fox Report and its influence on formulation of uranium policy. Claims that the pattern of development advocated by the Report would continue to delay development of NT uranium deposits, with serious consequences for the mining industry. Discusses ALP and trade union attitudes to uranium development, and claims that with time there has been a weakening of the alliance of anti-uranium groups. Cites the major features of the Australian government's nuclear safeguards policy, and discusses its implications for the rate and timing of Australian uranium development. Predicts that the Australian government will permit uranium development, speculates on how and when this will occur, and identifies factors which will influence it. Argues that economic considerations will play an important part in government policy.

225. HAMPSON, D.C., 1980. AUSTRALIA'S URANIUM, RESOURCES POLICY, 6,2, JUNE, p143-152.

Discusses the background to Australia's uranium industry and examines its likely international significance. Details export contracts for uranium obtained by potential producers Ranger, Nabarlek and Mary Kathleen and approved by the Liberal government before December 1972. Outlines changes in uranium policy under the Labor government (1972-5), and favourably reviews the more 'expansive' attitude of the new (1975) Liberal/NCP government and its 1977 decision to proceed with mining and export, subject to strict non-proliferation safeguards and government controls. Subsequent uranium discoveries are described, and changes in the government's financial involvement outlined. Assesses Australia's uranium reserves, existing and potential, and makes a comparison with other leading producers. Warns that a number of countries have dramatically increased their uranium reserves, thus reducing the value and relevance of Australian reserves to the world's commercial nuclear industry.

Presents the London Uranium Institute's projections for Australian uranium production for 1979-90, and reviews assessments of future uranium demand based upon the premise that uranium will play an increasing role in electricity generation. Outlines the Fraser government policy on uranium sales and nuclear safeguards, and reviews current thinking on enrichment capacity in Australia. Discounts trade union opposition by citing uranium's low priority for unions as an issue and as a budget item and evidence of increasing employment of union members in the uranium industry.

226. HENDERSON, I., 1978. RANGER AND THE ATOMIC ENERGY ACT, ARENA, NO. 50, p11-16.

Discusses the significance of the Fox Inquiry's recommendation against the use of the Atomic Energy Act 1953 to cover mining at Ranger and of its rejection by the Fraser government. Outlines the development and provisions of the Act and argues that the present (1978) situation is different from 1953. Expresses concern about possible misuse of provisions within the Act with respect to any anti-uranium movement, and argues that the government's use of the Act in establishing Ranger could lead to development of further uranium deposits and should be exposed and resisted by the movement against uranium mining.

227. HILL, B., 1983. ALP RAGE OVER PM'S URANIUM STAND, AUSTRALIAN, 22 SEPTEMBER, p1-2.

228. HYWOOD, G., 1983. BEHIND THE URANIUM GUILLOTINE, AUSTRALIAN FINANCIAL REVIEW, 6 JUNE, p6.

229. KELLY, P., 1986. HAWKE: THE FIGHTBACK, WEEKEND AUSTRALIAN 20/21 SEPTEMBER, p19.

Text of an interview with Prime Minister Bob Hawke which includes comments on uranium and nuclear power. Hawke justifies the lifting of the ban on uranium exports to France and argues that nuclear energy is an immutable fact and that under the terms of the NPT Australia is obliged to provide resources (uranium) to other countries for the peaceful use of nuclear energy. Claims that Australian nuclear safeguards are the most stringent in the world.

230. MACCULLUM, M., 1975. WE CAN'T AFFORD NOT TO SELL URANIUM, NATION REVIEW, 4-10 APRIL, p649.

Suggests that the government sees supply of uranium to important trading partners and Pacific neighbours as both strategically and economically advisable.

Describes parliamentary reaction to suggestions of uranium sales to Iran, and predicts widespread public and environmentalist opposition. Briefly summarises common arguments against selling Australian uranium overseas, but argues that the plight of energy deficient industrialised nations needing nuclear power may well lead to an Australian decision to export. Reviews Labor Minister for Minerals and Energy Connor's vision of an Australian uranium industry and the initial negotiations with the Japanese and EEC regarding enrichment facilities.

231. MILTON, P., 1986. WHY I WALKED OUT OF PARLIAMENT OVER THE DECISION TO SELL URANIUM, AGE, 22 AUGUST, p13.

Peter Milton, Labor MHR for LaTrobe, explains why he walked out of the federal parliament after the announcement that Australian uranium would be exported to France. Milton claims that the decision was in direct contravention of Labor Party policy and procedure, and involved the federal government in activities which are morally unjustifiable and likely to damage relations with Australia's South Pacific neighbours in return for a 'paltry' revenue gain.

232. NEFF, T.L., 1984. THE INTERNATIONAL URANIUM MARKET, BALLINGER, CAMBRIDGE, MASSACHUSETTS, CHAPTER 5, AUSTRALIA AND CANADA, p111-142.

Examines the historical role of Australia in international uranium trade, evaluates the current capacity and contract status of key ventures, reviews in detail the present Australian policy environment and discusses Australia's role in the future world uranium market. Reviews in detail the uranium policy of the Liberal/NCP government, and discusses opposing views held by some trade unions and members of the ALP. Argues that although the major political parties differ in their attitude towards uranium mining, the regulatory mechanisms established under the Fraser Government will probably continue to govern the industry's future operations. Reviews Labor Party policies since its election to government, and their implications for the uranium industry.

233. NORTHERN TERRITORY DEPARTMENT OF MINES AND ENERGY, 1985. URANIUM ISSUES IN THE LIGHT OF COMMONWEALTH POLICIES, DEPARTMENT OF MINES AND ENERGY, [DARWIN], 24p.

Critically reviews Commonwealth uranium policies with particular regard to their implications for the NT

economy. Outlines present uranium mines and proposals for major new ventures throughout Australia, argues that the NT gains substantial social and economic benefits from uranium mining, and criticises the Commonwealth's decision to withhold authorisation to negotiate overseas export contracts on behalf of Jabiluka, Koongarra and Yeelirrie uranium mines, arguing in favour of testing the world market to assess demand. Also criticises the decision to allow the Roxby uranium project to develop at the expense of these deposits and existing NT mines, and argues that Australia has failed to establish a reputation as a reliable supplier, negating its influence on safeguard and control agreements. Reviews developments in nuclear waste management and claims that a safe storage and disposal method is already established, argues that environmental damage from the nuclear power industry is considerably less than from conventional fossil fuel energy production, and defends the safety record of the nuclear industry.

234. OCKENDEN, T., 1978. THE URANIUM HAWKERS, JOULES, NO. 2, SEPTEMBER, p4-5.

Critically reviews the role of the Fraser Government and the Australian Mining Industry Council (AMIC) in the development and promotion of the Australian uranium industry. Discusses the implications of Australian uranium producers' membership of a pricing cartel, and their protection by the Fraser government. Examines the interwoven network of multinational interests in uranium mining and claims that uranium profits are largely going overseas. Reviews uranium promotion schemes by the government and the AMIC, and claims that the Fraser Cabinet decided not to highlight economic benefits from uranium mining both because these are in fact minimal and because it was thought 'somewhat insensitive to stress wealth against arguments for people's lives and health'.

235. RAMSEY, A. AND FARMER, R., 1974. THE VISITOR FROM JAPAN, NEW ACCENT, 28 SEPTEMBER, p6-8.

Reviews negotiations between the vice-president of Shikoku, a Japanese electricity utility, and the federal (Labor) government to develop uranium deposits at Nabarlek. Outlines agreed Shikoku supply contracts, and reports Mr Yamaguchi's warning to Minister for Minerals and Energy Rex Connor and the government about the serious consequences of not proceeding with contracts for Shikoku, for the Japanese nuclear industry and, he implied, for Japanese/Australian relations. Reviews repercussions from Yamaguchi's

letter to leading Australian government ministers, including a guarantee to meet contractual obligations from stockpiled uranium. Questions Connor's delay in submitting a uranium policy to cabinet, but argues that his approach to uranium exploitation, including his secretiveness, attitude to mining company executives, and respect for the tough Japanese negotiators, reflects a determination to control who may undertake operations, export prices, and the scale and rate of mineral exploitation. Reviews Japanese/Australian uranium negotiations and suggests the tactics are reminiscent of psychological warfare.

236. SADDLER, H., AND KELLY, J.B., 1983. THE URANIUM DECISION, IN RICHMOND, W.H. AND SHARMA, P.C. (EDS) MINING AND AUSTRALIA, UNIVERSITY OF QUEENSLAND PRESS, ST LUCIA, 257-283.

Focuses on the politics of uranium mining, attempting to illustrate some of the vital political issues it created in the changed circumstances which accompanied the Whitlam and Fraser governments. Examines government decision making in a 'controversial and politically sensitive area', discusses the importance of the Ranger Inquiry in policy formulation, and reviews policy formulation and implementation by the Fraser government. Reviews the continuing debate on uranium mining and export, evaluates the uranium decision-making process, speculates on the outcome had the Ranger Inquiry not been held, and suggests that a public inquiry is the most satisfactory option for dealing with such a controversial issue.

237. SADDLER, H. AND MARTIN, B., 1977. AUSTRALIAN URANIUM AND THE ELECTION, NEW SCIENTIST, 8 DECEMBER, p644-645.

Discusses the arguments put forward by the Fraser government to justify mining and export of Australian uranium. These arguments do not rest on the economic benefits which mining companies and the Australian government expect to receive from uranium exports, and which the authors believe provide the fundamental basis for the government's approach. They do include the claim that availability of Australia's extensive uranium resources would reduce the need for development of fast-breeder reactors which economise on the use of uranium but produce large quantities of weapons-grade plutonium, a claim consistent with United States President Carter's policy of indefinitely postponing introduction of fast-breeder reactors. But the Fraser-Carter policy is threatened by the refusal of other nuclear countries to delay development of

fast-breeder technology. In addition, a contradiction exists between other aspects of Australia's international commitments on nuclear proliferation and the Fraser government's desire to quickly expand uranium exports, a desire evident from its continued involvement in the Ranger uranium project.

238. SCHNEIDER, R., 1983. HAWKE BANS URANIUM SALES TO FRANCE, AUSTRALIAN, 9 JUNE, p12.
239. SIMSON, S., 1979. URANIUM AND THE THREE MEN IN A BOAT, NATIONAL TIMES, 9 JUNE, p18.
240. SMITH, G., 1976. FUELLING UP FOR DISASTER, ARENA, NO. 42, p23-28.

Reviews the history of uranium mining in Australia, identifies the interests pushing for a government policy of extraction and export, and examines how their role in the political process has evolved. Reviews the conflict between mining interests and the policy of Labor Minister for Minerals and Energy Connor, and also the implications for the uranium industry of a growing interdependence of Australian and Japanese trade.

241. SMITH, T., 1979. FORMING A URANIUM POLICY: WHY THE CONTROVERSY?, AUSTRALIAN QUARTERLY, DECEMBER, p32-50.

Examines the factors that have made uranium mining a controversial issue, and assesses the nature of that controversy and its influence on the qualities of policies and on the processes by which they are being formulated and implemented. Outlines the political context within which uranium policy was formulated and discusses the interests and organisations on both sides of the uranium debate and the arguments and tactics they employed. Examines the nature of relevant policy processes, arguing that these became 'normal' (i.e. secretive and reflecting the impact of bureaucratic competition) after each of the Ranger Inquiry Reports was issued. Highlights the interdependence between uranium and other policy areas (e.g. Aboriginal land rights, environmental protection), which tended to increase the range of government agencies involved and to heighten conflict and delay policy formulation. Indicates how key events (e.g. the energy crisis, the Three Mile Island accident) affected the uranium debate and the policy process, and concludes by assessing how their experience with the uranium issue might affect the approach of Australian governments and the various interest groups involved to the policy process.

242. TAYLOR, M., 1986. URANIUM SALES EMBARGO LIFTED, AUSTRALIAN FINANCIAL REVIEW, 20 AUGUST, p16.

Presents the justification offered by Senator Evans, federal Minister for Resources and Energy, for the resumption of uranium sales to France. Evans argued that the decision would add significantly to government revenue, thus limiting the extent of government expenditure cuts, and that the ban on sales had been ineffective in attempting to stop French nuclear testing in the Pacific.

243. THOMAS, R.J., 1987. AUSTRALIA'S URANIUM EXPORT POLICY, NUCLEAR SPECTRUM, 3, 2, p24-25.

The author, Assistant Secretary, Coal and Nuclear Division, Commonwealth Department of Primary Industries and Energy, summarises the findings of the ASTEC Report and the Hawke government's response to it. Reviews current uranium export policy, discussing safeguards; trade, commercial and production policy; the Australian floor price; and import restrictions overseas.

244. TOOHEY, B., 1976. URANIUM'S IDEOLOGICAL HANG-UP, AUSTRALIAN FINANCIAL REVIEW, 2 APRIL, p1,8,13.

Discusses the debates currently being carried on among bureaucrats in the Treasury and National Resources Departments and within the Fraser government regarding two aspects of uranium policy. The first involves the degree to which the federal government should be involved in determining uranium prices and the timing of uranium development in Australia, the second government participation in uranium mining projects, particularly the Commonwealth's shareholding in Mary Kathleen Uranium.

245. TROOD, R.B., 1983. AUSTRALIAN URANIUM EXPORTS: NUCLEAR ISSUES AND THE POLICY PROCESS, IN BOARDMAN, R. AND KEELEY, J.F. (EDS), NUCLEAR EXPORTS AND WORLD POLITICS, MACMILLAN, LONDON, p120-159.

Examines the evolution of Australian uranium export policy during the 1970s and several issues associated with the development of Australia's uranium resources. Reviews three important elements of the policy process, the public debate, the role of the Ranger Inquiry and the government's decision to proceed with mining. Shows how the uranium issue involved not only protagonists from the political parties, but also drew in a wide spectrum of the community. Argues that the public debate served to establish and confirm the

agenda of issues for resolution (whether or not to proceed with mining and export of uranium, impose safeguards, proceed with enrichment facilities, require environmental precautions, and/or acknowledge the concerns of Aborigines), and provided a range of possible options and policy alternatives. Discusses the establishment and recommendations of the Ranger Inquiry and critically reviews the Fraser government's justification for the uranium mining and export go-ahead, analysing five specific issues, safeguards and non-proliferation policy; uranium enrichment; government involvement in the uranium industry; environmental protection and the impact of uranium mining on Australia's Aboriginal people.

246. URANIUM ADVISORY COUNCIL, ANNUAL REPORT, 1978/79-1982/83, ANNUAL, AGPS, CANBERRA.

The Uranium Advisory Council was established in 1978 to provide advice regarding the export and use of Australian uranium to the federal Minister for Trade and Resources and, where required, to the Director of National Parks and Wildlife, the Northern Land Council, the Supervising Scientist, relevant government agencies and uranium mine operators. Each Annual Report provides a summary of the Council's activities during that year, a brief discussion of the issues under consideration by the Council at the end of the year, and the texts (contained in appendices) of reports and advice submitted by the Council to the federal government. Issues dealt with include the review of the Atomic Energy Act 1953, matters of concern to Aboriginal people in the Alligator Rivers Region, laws affecting uranium mining in the NT, the development and impact of specific uranium deposits, public knowledge regarding and public attitudes to uranium and nuclear power, government regulation of uranium mining and the ASTEC Report. The Uranium Advisory Council was disbanded by the Hawke government in 1983.

247. WALSH, M., 1973. MINERS ANGER GOVERNMENT: SECRETIVE DEAL THREATENS URANIUM CONTRACTS, AUSTRALIAN FINANCIAL REVIEW, 4 MAY, p1, 18.
248. WALSH, M., 1977. FRASER'S URANIUM STRATEGY, AUSTRALIAN FINANCIAL REVIEW, 23 SEPTEMBER, p1-2.

Discusses the reasons behind the Fraser government's policy of not highlighting the potential economic benefits of uranium mining and export in its recent educational drive; these included a review of opinion poll outcomes on the uranium issue which indicated widespread public concern with non-economic

considerations, the health vs profit argument of the opponents of uranium, and the strategy of anti-uranium campaigner Tom Uren.

249. WISE, S.J.C., 1979. COMMENT ON COMMONWEALTH AND STATE CONTROLS OVER URANIUM EXPLORATION AND PRODUCTION, AUSTRALIAN MINING AND PETROLEUM LAW JOURNAL, 2, 1, p54-57.

Comments on aspects of Commonwealth and state controls over uranium exploration and production which, it is argued, have a great impact in determining whether or not a project will be able to proceed. Reviews two key issues which will affect formulation of a uranium export policy, sovereign immunity for Australian producers and government safeguards requirements on Australian yellowcake. Discusses the possibility of overlap between federal and state controls, and argues that although clearly defined legislative limits can reduce any overlap from a legal point of view, political influence and expediency will tend to blur the extent of overlap and influence the manner in which export sales approval might be granted. Argues that the Australian government's export policy holds the key to successful development of Australia's uranium industry, and reports that details of that policy's implementation through federal government controls are being formulated. Notes that the trade-off between higher product prices and total export tonnages normally faced by the government is complicated in the case of uranium by safeguards considerations.

Cross References

2, 4, 5, 26, 27, 28, 30, 35, 38, 39, 42, 43, 48, 56, 61, 69, 84, 90, 96, 107, 108, 112, 117, 119, 126, 128, 149, 160, 164, 182, 187, 188, 256, 275, 288, 289, 296, 317, 329, 333, 335, 342, 344, 350, 356, 359, 360, 367, 370, 373, 375, 400, 423, 443, 444, 457, 462, 467, 479, 480, 484, 493, 494, 503, 508, 513, 530, 531, 541, 545, 548, 552, 553, 555, 574, 575, 586, 589, 598, 623, 635, 665, 673, 748, 750, 754, 756, 763, 767, 770, 773, 774, 780, 789, 796, 797, 798, 819

Australian Atomic Energy Commission

250. AUSTRALIAN ATOMIC ENERGY COMMISSION, ANNUAL REPORT, AUSTRALIAN ATOMIC ENERGY COMMISSION, SYDNEY, ANNUAL, 1954-1986.

Provides information on the roles, activities and organisational structure of the Australian Atomic Energy Commission. The nature of the Commission's activities changed substantially over this period (see Nos. 253 and 255), and the contents of its Annual Reports reflect these changes. In earlier years substantial information is provided on world uranium resources, production and demand, on developments in Australia's uranium mining industry, and on prospects for the development of nuclear power in Australia. More recently, the emphasis has been on environmental science, nuclear waste management, and the development of nuclear-related medical and industrial technology.

251. AUSTRALIAN ATOMIC ENERGY COMMISSION, 1982. AUSTRALIA'S ROLE IN NUCLEAR ENERGY RESEARCH AND TRAINING, AUSTRALIAN FOREIGN AFFAIRS RECORD, APRIL, p155-159.

Outlines the history and work of the AAEC. Classifies AAEC research under six main headings: nuclear fuel cycle research; development and demonstration (centred mainly around centrifuge enrichment and SYNROC); health and environmental science (including isotope hydrology, radiation biology and occupational health); the exploitation of radio isotopes and radiation techniques; nuclear technology (including research on fission reactor operation and controlled thermonuclear fusion); nuclear science (involving materials studies, physics and techniques); and a variety of services. Describes the establishment and role of the Australian Institute of Nuclear Science and Engineering and the Australian School of Nuclear Technology. Outlines the international role of the AAEC, particularly its relations with the IAEA, and favourably reviews the SYNROC technology.

252. AUSTRALIAN NUCLEAR SCIENCE AND TECHNOLOGY ORGANISATION, 1987. ANNUAL REPORT 1986-1987, ANSTO, SYDNEY, 52p.

Reports on the activities of the AAEC for the period July 1986-April 1987, on the establishment of its replacement, the Australian Nuclear Science and Technology Organisation, in April 1987, and on ANSTO's activities during April-June 1987.

253. BRENNAN, M.H., 1985. AUSTRALIAN ATOMIC ENERGY COMMISSION: THE LAST AND THE NEXT TEN YEARS, AUSTRALIAN FOREIGN AFFAIRS RECORD, JULY, p618-622.

Reviews some major changes in the AAEC's activities since its establishment in 1953 with particular emphasis on the decade to 1985. A shift in emphasis from nuclear power reactors to the front end of the fuel cycle (uranium mining, conversion and enrichment) occurred in the 1970s. This led to the Commission's commercial involvement in uranium mining at Mary Kathleen and in the establishment of the Ranger uranium mine. Research and development effort involving the SYNROC programme has grown substantially in the last two years.

254. EVANS, G., 1986. REFORM OF LEGISLATION COVERING AUSTRALIA'S ROLE IN NUCLEAR AND SAFEGUARDS ISSUES, NUCLEAR SPECTRUM, 2,1, p2-3.

The Federal Minister for Resources and Energy outlines and justifies changes to the Atomic Energy Act 1953 and the Australian Atomic Energy Commission. Details the three bills involved, and outlines their objectives and the role of the Australian Nuclear Science and Technology Organisation, the new body which will replace the AAEC. Evans believes the legislation will establish a viable base for conduct of nuclear research in Australia and ensure that its direction reflects government policy and is relevant to the community, and will reinforce the government's strong commitment to nuclear non-proliferation and safeguards.

255. GEORGE, D.W. AND WALKER, D.G., 1982. THREE DECADES OF NUCLEAR POWER RESEARCH AND DEVELOPMENT IN AUSTRALIA, ATOMIC ENERGY IN AUSTRALIA, VOL.25, JULY/OCTOBER, p2-6.

Provides a summary of the AAEC's changing research agenda in the three decades after its formation in 1953. Initially this was based on the assumption that Australia would develop nuclear power generating capacity, but by the early 1970s it was evident that this would not occur for at least some decades. In the meantime substantial uranium reserves had been discovered, and the research emphasis has shifted to focus on uranium processing, the environmental impact of uranium mining and processing, and nuclear waste management especially the SYNROC project.

Cross References

69, 144, 151, 329, 480

Ranger Uranium Environmental Inquiry

256. ANON., 1976. URANIUM POLICY: FULL RECORD AND BACKGROUND, ENERGY (CANBERRA), VOL. 3, NOVEMBER, p1-12.

Reviews the Fraser government's attitude to uranium and explains why major decisions on the issue will be delayed until the release of the Ranger Inquiry's Second Report. Predicts the most likely course of events in the light of the government's reaction to the Inquiry's First Report, and critically reviews ALP policy on uranium. Cites the principle findings and recommendations of that Report and includes the text of statements on it by a number of key Commonwealth government ministers. Presents statements by the Australian Uranium Producers' Forum and by anti-nuclear groups in response to the First Report, and a statement by Prime Minister Fraser (7 November 1976) on the government's attitude to conservation, environment policy and mining.

257. ANON., 1977. AUSTRALIA AND THE FOX REPORT, METAL BULLETIN MONTHLY, MAY, p37-39.

258. ANON., 1977. FOX REPORT 2: MAIN POINTS, CHAIN REACTION, 3, 1, p8.

259. ANON., 1977. NEWSLETTER ON THE FOX REPORT. JOURNAL OF THE BRITISH NUCLEAR ENERGY SOCIETY, 16, 2, p101-102.

260. ANON., 1977. THE SECOND RANGER URANIUM REPORT, SOCIAL SURVEY, VOL. 26, JUNE, p131-132, 139.

Claims that the Ranger Inquiry Second Report indicates a rejection of the plan of action proposed by the Ranger mining companies, and the recommendation of another on which any approval to mine should be based. Emphasises the Report's recommendations regarding environmental protection measures and consideration of Aboriginal interests.

261. ANON., 1977. URANIUM - EVERYONE'S WELFARE AT STAKE, AUSTRALIAN SOCIAL WELFARE, VOL.7, MARCH, p26,28.

Quotes principle findings and recommendations of the [Second] Fox Report. A key recommendation was that there should be wide-ranging public discussion before any decision to mine and export uranium. Criticises the Fraser government for authorising mining to fulfil

existing contracts just two weeks after the Report's release.

262. BROTHERTON, P., 1977. THE FOX REPORT: LEST WE FORGET, ENVIRONMENT WA, AUTUMN, p14-19.

Reviews the findings and recommendations of the First Fox Report, argues that supporters of uranium mining have deliberately distorted the Report, presents a detailed point by point justification for this assertion, and questions government and company haste to proceed with mining and export of uranium without allowing for public consideration of the Report and debate upon it.

263. CAMILLERI, J. 1976. REPLY TO FOX REPORT, CHAIN REACTION, 2,3, p6-7, 11.

Reviews the findings and recommendations of the First Fox Report. Claims it does not give a green light to mining and export of Australian uranium, notes the Report's recognition of the hazards, dangers and problems associated with nuclear energy production, and identifies some ambiguities which are due to the Commissioners' differing views. Stresses the recommendation that the public, after consideration and discussion of the issue, should have the final say in the nuclear debate.

264. CAMILLERI, J., 1976. WHAT THE FOX REPORT REALLY SAID: THE URANIUM DEBATE, AUSTRALIAN LEFT REVIEW, NOS. 55/56, DECEMBER, p11-18.

Identical to No. 263.

265. CAMILLERI, J., 1976. THE URANIUM DEBATE AND THE FIRST RANGER REPORT, THE SEAMEN'S JOURNAL SPECIAL SUPPLEMENT, VOL. 31, DECEMBER, p289-293.

Identical to No. 263.

266. CAMILLERI, J., 1977. THE URANIUM DEBATE AND THE FIRST RANGER REPORT, OPERCULUM, 5, 3, p132-136.

Identical to No. 263.

267. FITZGIBBONS, A., 1977. REVIEW OF THE RANGER URANIUM REPORT, ECONOMIC ANALYSIS AND POLICY, 7, 2, p58-63.

Argues that the Fox Reports over-estimate the economic benefits likely to accrue from uranium mining and ignore significant economic costs, particularly those arising through the balance of payments with uranium

exports leading to higher imports and a decline in labour-intensive import-competing industries. Claims that great uncertainty surrounds key variables (especially uranium prices) which must be predicted in order to quantify future benefits. Also argues that the Fox Reports reflect a liberal ideology and an acceptance of 'conventional' values and that this resulted in a failure to critically assess the implications of a reliance on technologies which have potentially devastating consequences.

268. FITZPATRICK, W.L., 1975. REPORT [OF THE AAEC] SPELLS OUT URANIUM SUPPLIES, MINER, VOL. 2, 17 NOVEMBER, p3-4.
269. FRASER, A., 1976. URANIUM, QUADRANT, VOL. 20, DECEMBER, p15-17.

Reviews the findings and recommendations of the First Fox Report and strongly criticises claims that it recommends mining and export of Australian uranium. Stresses that the Commissioners, whilst presenting a thorough review of all relevant facts, failed to make any strong recommendations, save that no decision should be taken on uranium mining and export until a reasonable time had elapsed and there had been ample opportunity for public and parliamentary debate.

270. FRIENDS OF THE EARTH (DARWIN), 1977. PEOPLE'S GUIDE [TO THE] RANGER INQUIRY SECOND REPORT, NT TRADES AND LABOUR COUNCIL AND FRIENDS OF THE EARTH (DARWIN), DARWIN, 15p.
271. HENDERSON, I., 1977. WHAT PRICE AUSTRALIAN URANIUM, NEW SCIENTIST, 74, 1051, p336-337.
272. JOHNS, B.L., 1976. ECONOMIC BENEFITS AND COSTS OF URANIUM MINING IN AUSTRALIA - A CRITICAL EVALUATION OF SOME ASPECTS OF THE FIRST FOX REPORT, UNIVERSITY OF NEWCASTLE, NSW, 19p.

Argues that the First Fox Report underestimated the economic benefits likely to be associated with the development of a uranium industry in Australia. Among the reasons for this were the Report's assumption of full employment, the fact that it underestimated uranium's potential contribution to export income and employment (the latter because it ignored indirect employment effects), failed to take into account that a proportion of equity capital raised abroad would otherwise not be available for investment in Australia, and did not consider the favourable impact on profits in industries supplying goods and services to uranium miners. In addition the Report could not take account

of the November 1976 devaluation of the Australian dollar whose positive impact on net national income from uranium exports would be significant. Argues that the economic costs of a two-year delay in developing mining projects would be substantial.

273. MARSHALL, P., 1976. FOX GIVES MINING GO-AHEAD, RECOMMENDS STRICT GOVERNMENT EXPORT CONTROLS, NUCLEAR ENGINEERING INTERNATIONAL, 21, 251, p33-35.
274. MCCOLL, M.D., 1980. AUSTRALIAN MINING AND THE NATURAL ENVIRONMENT, WORKING PAPER NO. 14, CENTRE FOR APPLIED ECONOMIC RESEARCH, UNIVERSITY OF NSW, SYDNEY, 38p.

Reviews the Fraser Island sand-mining and Ranger Uranium environmental inquiries. Recounts events leading up to the establishment of the Ranger Inquiry, and reviews the findings and recommendations of its First and Second Reports with particular reference to economic issues and subsequent government uranium policy. Examines proposals to amend Commonwealth legislation concerning uranium mining and environmental impact, and discusses future developments in the uranium industry and the uranium/nuclear debate and their implications for the state of the environment.

275. MILLIKEN, R., 1977. URANIUM: WHAT WE NEED NOW IS SAFEGUARDS AGAINST BUREAUCRATS, NATIONAL TIMES, 30 MAY-4 JUNE, p18-19.

Discusses government action in the light of the Fox Reports, and notes Commissioner Kerr's scepticism about how the findings will be used. Reports on the Commissioners' reaction of relief at the stringency of the Fraser government safeguards, noting that nuclear proliferation was their greatest uranium-related concern. Reports on Kerr's anxiety about how bureaucratic wrangling between the NT and federal governments could jeopardise the effective implementation of the Reports' recommendations, and on his observations relating to the depth of parliamentary debates on uranium, the Fraser government's haste in finalising the Ranger Inquiry, and the way in which Friends of the Earth altered the tone of the Second Report. Outlines three major implications arising from the Fox Reports, i.e. the Commissioners' scepticism about Australia's ability to enforce its safeguards; the impact of the Reports' recommended moratorium on the direction of ALP uranium policy; and improvements in Aboriginal status and rights. Reviews the relationship between the Commission and the Public Service. Observes and accounts for the fact that the Report contains no sharp answers, rather a set of opinions.

276. MOYAL, A., 1979. URANIUM MINING AND NUCLEAR POWER: POLICY ASPECTS, IN HENDERSON, I. (ED), ENERGY POLICY IN AUSTRALIA: PROCEEDINGS OF A SYMPOSIUM HELD AT GRIFFITH UNIVERSITY, SCIENCE POLICY RESEARCH CENTRE, GRIFFITH UNIVERSITY, BRISBANE, p99-108.

Critically examines government response to three central policy recommendations of the first Fox Report concerning the establishment of a Uranium Advisory Council, development of a national energy policy, and provision for public debate on uranium. Presents the author's recommendations regarding future policy on uranium in Australia.

277. NEWMAN, K., 1977. RANGER URANIUM ENVIRONMENTAL INQUIRY - FIRST REPORT (MINISTERIAL STATEMENT), ATOMIC ENERGY, 20, 1, p21-22.
278. PATTERSON, W., 1976. FOX WITH A NUCLEAR BITE, NEW SCIENTIST, 72, 1027, p379-380.
279. PHELPS, R., 1976. THE NUCLEAR DEBATE, ENVIRONMENT WA, SUMMER, p3-5.

Reviews the findings of the Ranger Inquiry and states the belief that their publication should mark the renewal, and not the end, of earnest debate on Australia's uranium. Outlines the reasons for setting up the Inquiry and its brief, claims that many Australian and overseas political and commercial interests would prefer a minimum of public debate on the hazards and costs of uranium mining and nuclear power, and that recent Australian Uranium Producers Forum 'propaganda' ignores anti-nuclear arguments. Comments on the unequal resources at the disposal of the protagonists, but notes that public opinion in some nations, including existing uranium consumers, has started to move away from support of nuclear power. Believes the [First] Fox Report makes a valuable contribution to public awareness and debate, a process both necessary and desirable for responsible decision making by Australians and their government.

280. POCKLEY, P., 1976. RADIATING DOUBT: AUSTRALIA'S PARLIAMENTARY DEBATE ON THE FOX REPORT, NATURE, VOL. 264, DECEMBER, p697-698.

Reviews the findings and recommendations of the First Fox Report, and claims that the Fraser government's subsequent decision to go ahead with uranium mining was clearly predetermined and takes 'scant regard' of the Report's final recommendation that no decision should be taken until a reasonable time has elapsed and there

has been opportunity for public and parliamentary debate. Reviews the reactions to the government's decision of parliamentarians and of groups and individuals opposed to uranium and mining. Predicts that the uranium issue will not be debated any further in parliament unless Labor comes to power in Canberra, and speculates about the outcome of the Second Fox Report. Lists in full the findings and recommendations of the First Fox Report.

281. QUEENSLAND TRADE UNION ANTI-NUCLEAR LOBBY, 1976. THE URANIUM DEBATE AND THE FIRST RANGER REPORT, QUTAL, BRISBANE, 4p.

Identical to No. 263.

282. RANGER URANIUM ENVIRONMENTAL INQUIRY, 1976. RANGER URANIUM ENVIRONMENTAL INQUIRY, FIRST REPORT, AGPS, CANBERRA, 207p.

See text, p17-18.

283. RANGER URANIUM ENVIRONMENTAL INQUIRY, 1977. RANGER URANIUM ENVIRONMENTAL INQUIRY, SECOND REPORT, AGPS, CANBERRA, 415p.

See text, p19-20.

284. SADDLER, H., 1980. IMPLICATIONS OF THE BATTLE FOR THE ALLIGATOR RIVERS: LAND USE PLANNING AND ENVIRONMENTAL PROTECTION, IN JONES, R. (ED) NORTH AUSTRALIA: OPTIONS AND IMPLICATIONS, RESEARCH SCHOOL OF PACIFIC STUDIES, AUSTRALIAN NATIONAL UNIVERSITY, CANBERRA, p187-200.

Identifies, defines and examines the issues of land use planning and environmental management in the Alligator Rivers Region. Describes the physical features of the Region, and recounts the history of uranium exploration, competing claims for land use and the campaign for declaration of a national park in the region. Reviews the Ranger Inquiry's findings regarding Aboriginal ownership of land in the Region, and its recommendations concerning the administrative procedures and structures involved in controlling the region's future development. Outlines the federal government's policy towards the Inquiry's recommendations concerning land use, and predicts delays for the Pancontinental venture. Discusses ways of resolving the conflict between mineral development and national park conservation, the threat to the environment posed by uranium mining at Ranger and Jabiluka, and reviews the Ranger Inquiry's recommendations regarding protection of Magela Creek's

natural environment. Outlines the function of the Supervising Scientist and the legislation available to prevent environmental damage. Identifies two areas where government policy departs from the Inquiry's recommendations, speculates about policy and decision-making procedures had the Inquiry not been held, and argues that the government's acceptance of many of its recommendations was due to political expediency. Speculates whether the objectives of the environmental protection measures will actually be achieved in practice.

285. SMITH, W.G., 1976. THE URANIUM MINING CONTROVERSY: A TEMPORARY AFFAIR, SOCIAL SURVEY, VOL. 25, NOVEMBER, p308-312.

Reviews the First Fox Report, noting miners' and environmentalists' disappointment at its lack of definite conclusions, and discusses the Commission's findings on operational safety in mining and milling and the manageability of the nuclear fuel cycle, and its concern about radioactive waste disposal, nuclear terrorism, and particularly nuclear weapons proliferation. Reviews the Commission's list of controls and regulations and its proposal to establish a non-governmental uranium policy review body. Notes the Commission's recommendation for public debate on uranium, but acknowledges that the Report does not morally preclude the government from exporting uranium.

286. TAYLOR, P., 1977. SPEAKING WITH TWO TONGUES: THE FOX REPORT, ARENA, No. 49, p3-12.

Acknowledges the Fox Reports' thoroughness, scope and academic calibre and their refutation of most pro-nuclear energy arguments, but argues that the rationale for the go-ahead for uranium mining and export, which the Fraser government claimed varied only in a few cases from the Reports' recommendations, reveals 'a misuse of language, a misunderstanding of the nature of scientific objectivity, a lack of moral or social perspective and a total misunderstanding of the nature of power in society'. Cites examples in support of these criticisms. Claims the Fraser government's proposals for mining in fact reveal 'major deviations' from the Fox Report recommendations. Also argues that free and rational debate cannot come about because the balance of power in a capitalist society favours corporate interests (including the uranium producers) which in turn control the means to disseminate information.

287. WOODS, D.T., NICHOLLS, L.T. AND KEMENY, L.G., 1978. THE RANGER URANIUM ENVIRONMENTAL INQUIRY AND THE ENVIRONMENTAL PROTECTION (IMPACT OF PROPOSALS) ACT 1974, ENVIRONMENTAL ENGINEERING CONFERENCE, SYDNEY, 12-14 JULY, p25-30.

Reviews the regulations and administrative procedures of the Environmental Protection (Impact of Proposals) Act 1974, and critically reviews the definition of the Ranger Inquiry's objectives, the selection of its Commissioners and advisers, its method of taking evidence, its manner of reporting, and the interpretation placed on its findings and recommendations. In relating the experiences of Ranger Uranium Mines personnel with the Inquiry, makes some suggestions for improving the effectiveness of such inquiries as a method of environmental impact assessment. An appendix includes excerpts from the 1978 Windscale Inquiry.

Cross References

78, 79, 108, 111, 131, 142, 148, 166, 183, 187, 188, 214, 216A, 224, 226, 236, 245, 305, 313, 333, 401, 415, 437, 439, 444, 460, 497, 498, 541, 548, 631, 654, 717, 754

ASTEC Inquiry

288. AUSTRALIAN SCIENCE AND TECHNOLOGY COUNCIL, 1984. AUSTRALIA'S ROLE IN THE NUCLEAR FUEL CYCLE, A REPORT TO THE PRIME MINISTER, AGPS, CANBERRA, 312p.

See text, p23-24.

289. BUTTAR, P.A., 1986. INTERNATIONAL IMPLICATIONS OF THE AUSTRALIAN NUCLEAR FUEL CYCLE, IN PELZER, N. (ED), STATUS, PROSPECTS AND POSSIBILITIES OF INTERNATIONAL HARMONIZATION IN THE FIELD OF NUCLEAR ENERGY LAW, PROCEEDINGS OF THE INTERNATIONAL CONFERENCE OF THE INTERNATIONAL NUCLEAR LAW ASSOCIATION, KONSTANZ, WEST GERMANY, 29 SEPTEMBER-2 OCTOBER 1985, INLA, BADEN-BADEN, WEST GERMANY, p459-483.

Briefly reviews the establishment of the ASTEC Inquiry and examines those issues discussed in its Report which relate to the international legal implications of an Australian nuclear fuel cycle, concentrating particularly on safeguards. Includes the Inquiry's recommendations in an appendix. Discusses the merits and demerits of the Australian government's uranium export policy. Reviews three submissions to the Inquiry from Senator Ruth Coleman, Robert Rands and Scientists Against Nuclear Armament (SANA), and the Committee's response to each. The review of the Report includes sections on the assumptions made by ASTEC, reprocessing, safeguards, statutory controls, retransfers of Australian-origin material, the 'all-in-all-out' principle, yellowcake safeguards, SYNROC and the international interdependence of the nuclear fuel cycle. Argues that the key implications of the nuclear fuel cycle for Australia relate to the two ends of the cycle, uranium mining and nuclear waste disposal.

290. BUTTAR, P.A., 1986. THE NUCLEAR FUEL CYCLE AND THE ASTEC REPORT, ENVIRONMENTAL AND PLANNING LAW JOURNAL, 3, 1, p3-21.

Reviews the strengths and weaknesses of the ASTEC Report's treatment of nuclear safeguards and non-proliferation. Outlines the background to the establishment of the ASTEC Inquiry and its terms of reference and discusses technical points relating to the legal basis of the Inquiry. Discusses some of the submissions made to the Inquiry and the criticisms they made regarding its assumptions and terms of reference. Outlines inherent weaknesses in the NPT and the IAEA's safeguards system which, the author claims, were not

adequately addressed by the Inquiry. Analyses the IAEA safeguards in detail, and discusses Australia's bilateral safeguards system.

291. FALK, J., 1984. THE SLATYER REPORT, SEARCH, 15, 7-8, p181-183.

Presents a critical review of the Slatyer Report which is described as a case for the defense of mining and export of Australian uranium. Claims the Report's terms of reference and procedures limited its objectivity and excluded any reference to opposing viewpoints. Includes the conclusions of a parallel inquiry set up by Dr Keith Suter which recommended immediate cessation of uranium exports. Criticises the Slatyer Inquiry's failure to address the argument that an Australian withdrawal or a uranium moratorium would be a very important political statement about the claimed adequacy of the non-proliferation regime, and makes a comparison between the views of the Fox and Slatyer Inquiries on the dangers of nuclear weapons proliferation. Criticises the Slatyer Inquiry's tendency to accept reports and statements made by government and international nuclear organisations as definitive, and to ignore almost all opposing conclusions.

292. FORD, J., 1984. ALP'S URANIUM POLICY TAKES SHAPE IN THE DARK, AUSTRALIAN, 2 APRIL, p9.

Examines the preparation of a report on uranium by ASTEC, to be ready in time for the July 1984 ALP National Conference. Expresses ASTEC's concern about implied criticisms of bias by Australia's anti-uranium groups, lists bodies which have made submissions, explains ASTEC's procedures for collecting material, and outlines the main points of each side's submissions.

293. FORD, J., 1984. HAWKE GETS HIS NUCLEAR LICENCE, AUSTRALIAN, 1 JUNE, p7.

Summarises the major findings of ASTEC's Report on the Nuclear Fuel Cycle. Argues that the Report strongly supports the case for uranium mining and gives little airing to anti-uranium arguments, and claims that this does not reflect an exclusively technological focus but rather the Report's interpretation of facts which could have been used to reach different conclusions. Claims that the Report's failure to offer a more balanced analysis may reduce its utility to Prime Minister Hawke in attempting to counter the arguments of the anti-uranium lobby.

294. LEEKS, R., 1984. A CRITIQUE OF THE ASTEC REPORT, AUSTRALIAN LEFT REVIEW, 89, SPRING, p51-54.

Argues that the findings of the ASTEC Inquiry were biased by its terms of reference, the background of its members (drawn primarily from heads of big business and senior university faculty), and the fact that interested community groups were not given time to prepare submissions to the Inquiry. Offers a detailed critique of the position taken by the ASTEC Report on nuclear proliferation and the effectiveness of the current non-proliferation regime, a position which underlaid its conclusion that increasing Australia's uranium exports would not contribute to the spread of nuclear weapons.

295. LEVETT, J., 1984. FOCUS ON URANIUM, AUSTRALIAN SOCIAL WELFARE IMPACT, 14, 2, p25-26.

296. LOWE, I., 1984. BLINDED BY SCIENCE: LABOR AND SLATYER, ARENA, NO. 69, p133-150.

Briefly outlines the background of the uranium debate in Australia and the policies of the Fraser government, the ALP and the Hawke government on the issue of uranium mining and export. Analyses the Slatyer Report under three main headings: demand for uranium, nuclear weapons proliferation, and the management of radioactive waste. Claims that the Report appears 'to give a veneer of scientific validity to conjecture and belief', and is seriously deficient in its intended role as a justification for the continued involvement of Australia in the uranium industry. Identifies and discusses serious difficulties encountered in attempting to analyse a technology as complex as that employed in the nuclear industry, and claims that the Slatyer Report is an example of how contributions to the uranium debate have 'glossed over' the industry's complexities, failing to make any distinction between evidence and conjecture. Refutes arguments put forward by the Report on demand for Australian uranium and the effectiveness of Australian safeguards agreements, and criticises its optimism about nuclear waste disposal technology. Claims that the views of ASTEC (as evidence by the Report) reflect the dominance of 'progressivism' and technocratic values which conflict with concerns felt by environmentalists.

297. LOWE, I., 1985. FROM SCIENCE TO PUBLIC POLICY, METASCIENCE, VOL. 3, p20-24.

Cross References

139, 243, 344

State Government Policies

298. ANON., 1983. URANIUM EXPLORATION/DEVELOPMENT POLICY, MINERAL INDUSTRY QUARTERLY, NO. 31, SEPTEMBER, p6-7.
299. BROADBENT, S. AND PREGNELL, T., 1987. LABOR PLANS NUCLEAR WASTE DUMP FOR NT, DIRECT ACTION, 18 NOVEMBER, p3.

In attacking proposals by the Northern Territory government to locate uranium processing and nuclear waste disposal facilities in the Territory, the authors criticise a publication by staff of the NT Department of Mines and Energy (see No. 203). Their criticism is based on the claim that the publication ignores economic, environmental and health and safety problems associated with the nuclear industry, because the industry has not solved these problems nor made much effort to do so. The Northern Territory government's proposals are criticised on the grounds that the projects involved would be uneconomic and would generate major environmental and health and safety problems.

300. BUCKMAN, G., 1982. NUCLEAR ROUND-UP: NUCLEAR ENERGY IN AUSTRALIA TODAY, OPUS, VOL. 3, JUNE, p15.

Criticises South Australian policy on uranium mining, and questions the justification for, and the environmental safety of, the in situ leach mining process to be used at Honeymoon. Details Australian uranium projects in production and awaiting development.

301. CARR, R., 1982. ROXBY LOOMS AS A DANGER TO ALP HOPES, BULLETIN, 29 JUNE, p28-29.

The first electoral test of the ALP'S anti-uranium policy occurs at the South Australian Legislative Assembly election in 1982. At the time of an extended slump in the state economy the Labor party must campaign in opposition to a big development [Roxby Downs]; Carr assesses the Party's chances and points out that the federal ALP has a big stake in the outcome.

302. ENGLISH, D. AND DOHERTY, J., 1979. URANIUM PART 4: BALANCING CAUTION WITH BENEFITS, ADVERTISER, 26 APRIL, p4, 14.

Reviews the impact of South Australia's two year uranium moratorium decision which was based on a belief that adequate safeguards for disposal of radioactive waste still did not exist and the depressed state of

world uranium markets. Outlines the potential of the Roxby Downs uranium and copper deposit and the logistics of exploiting it, notes the consequences of the state government's 'no uranium' policy since Western Mining Corporation claims that it cannot develop the copper deposit without extracting uranium too, and mentions the health hazard posed by radon gas in deep shafts. Reviews the part uranium mining has played in state politics and recounts the history of uranium mining in South Australia.

303. GOLDSWORTHY, R., 1980. SOUTH AUSTRALIA'S URANIUM RESOURCES: THE GOVERNMENT'S DECISION, GOVERNMENT PRINTER, SOUTH AUSTRALIA, 12p.

Contains the text of a speech to the South Australian Assembly by Deputy Premier and Minister for Mines and Energy, Roger Goldsworthy, in which he states his government's intention to proceed with uranium mining and processing, subject to satisfactory environmental impact statements, design of proper operations procedures, and the sale of uranium to approved countries. Outlines the extent of South Australia's uranium reserves, and mentions increased world energy shortages and long lead times for development of alternative energy sources as justification for the state government's decision. Gives assurances about operational safety measures, transport of nuclear material and waste disposal, and establishment of environmental impact procedures for the safe conduct of mining operations. Mentions state government financial involvement in any future conversion or enrichment plant which, he claims, will ensure safeguards for the use of enriched uranium exported from South Australia.

304. HALLAM, J.R., 1982. ROXBY: TURN ON THE RED LIGHT, RABELAIS, 16,9, p13.

Reviews the implications of the Roxby Downs Indenture Ratification Act 1982, passed by the South Australian Upper House on 18 June. Argues that its passage is premature and gives Western Mining Corporation and British Petroleum 'carte blanche' to exploit Roxby's mineral reserves (including uranium) as and when they choose, without being subject to the usual federal and state environmental controls.

305. LETTS, G., 1977. MAJORITY PARTY FAVOURS URANIUM MINING, NORTHERN TERRITORY NEWSLETTER, JUNE, p3-6.

Reports on a Northern Territory Legislative Assembly debate initiated by CLP leader Goff Letts in which he states his party's support for uranium mining in the

NT. Argues in favour of mining uranium at the highest marketable level on the grounds that it will enhance Australia's international status and benefit Australia and the NT economically. Recommends a coordinated approach to mining to minimise the impact on the region's people and environment, calls for a prompt start to mining operations and for further exploration to delineate NT resources for future development, and advises a wide spectrum of government and public involvement in implementing the CLP policy. Criticises the choice of an alternative site for the Ranger mining township and the proposed number of different administrative bodies arising as a result of the Fox Report recommendations. Outlines the types of economic benefits which could accrue from uranium mining, and argues in favour of sensible resource utilisation as the basis of a strong Territory economy. Reports statements by other members of the Legislative Assembly during the debate in support of uranium mining.

306. PAYNE, R., 1983. URANIUM DEVELOPMENT POLICY: MINISTERIAL STATEMENT ISSUED 22 MARCH, MINERAL INDUSTRY QUARTERLY, VOL. 29, MARCH, p2-4.

Statement by the South Australian Minister for Mines and Energy, Ron Payne, setting out the reasons for the decision not to grant a production licence for the Honeymoon uranium deposit. These include Labor party policy on uranium, based on concerns that many of the social, environmental and nuclear arms issues associated with the uranium industry remain unresolved; the depressed state of uranium markets and the state government's determination that any opportunities should be available to Roxby Downs to help ensure the viability of an economically-strategic project; the limited economic gains expected from Honeymoon, and public disquiet regarding the in situ leaching process it planned to employ.

307. STANLEY, O., 1984. URANIUM AND THE RAILWAY: BACKGROUND TO TWO ELECTION ISSUES, IN LOVEDAY, P. AND JAENSCH, D. (EDS), A LANDSLIDE ELECTION, THE NT 1983, NORTH AUSTRALIA RESEARCH UNIT, DARWIN, p9-19.

Attempts to assess the significance to the Northern Territory economy of some issues, including uranium, which figured prominently in the 1983 Territory election campaign, and provides a chronology of announcements and actions relating to those issues and the election. Discusses the contribution of uranium royalties to the NT economy and to the way of life of Aborigines in the Alligator Rivers Region.

308. TRELOAR, C., 1981. ROXBY DOWNS: A SAVIOUR IN BIG TROUBLE, FINANCIAL REVIEW, 16 NOVEMBER, p10.

Speculates that politics rather than market forces will stop the development of Roxby Downs. Discusses the implications for Roxby of the Australian Democrats' hold on the balance of power in the South Australian Upper House, reviews the findings of a select committee on the future of the state's uranium resources, and outlines the level of investment already committed by the mining companies to the venture. Reviews the reaction of the ALP and the Australian Democrats to the Roxby Downs Indenture Ratification Bill. Reports that Liberal State Premier Tonkin is encouraged by federal government authorisation for a feasibility study on an Australian enrichment industry by the Uranium Enrichment Group of Australia.

Cross References

52, 139, 171, 177, 183, 319, 324, 325, 335, 488, 497, 532, 537, 544, 594, 595, 596, 601, 620, 672, 676, 678

Legal Aspects and Legislation

309. BOBEFF, P.A., 1981. COMMENT ON RECENT DEVELOPMENTS IN THE LAW RELATING TO URANIUM, AUSTRALIAN MINING AND PETROLEUM LAW JOURNAL, VOL. 3, p313-319.

Comments upon two areas of Browne's 1981 paper (see next entry), the Westinghouse litigation, and constitutional doubts in relation to the power of the NT Legislature to make laws relating to the uranium mining industry in the Territory.

310. BROWNE, A.A., 1981. RECENT DEVELOPMENTS IN THE LAW RELATING TO URANIUM, AUSTRALIAN MINING AND PETROLEUM LAW JOURNAL, VOL. 3, p291-312.

Updates Nicholson's 1979 paper (see No. 324) on Commonwealth and state controls of uranium mining. Discusses changes to the Atomic Energy Act 1953 and related amendments, international safeguards agreements and other marketing considerations, Commonwealth regulation and codes of practice, and legislative developments in the NT.

311. BUCHANAN, D., 1978. ENFORCEABILITY OF URANIUM CONTRACTS, LEGAL SERVICE BULLETIN, VOL. 3, JUNE, p100-101.

Discusses whether governments can make contracts for the mining and sale of uranium ore binding upon their successors in the light of the ALP's stated intention to rescind or fail to honour any agreements entered into by the Commonwealth with uranium mining companies.

312. COLE, D.A., 1978. LEGAL ASPECTS [OF THE URANIUM ISSUE], ISSUES 1977, NO. 59, DEPARTMENT OF CONTINUING EDUCATION, UNIVERSITY OF ADELAIDE, p68-77.

Discusses some legal aspects of the uranium industry. These include regulation and control of the industry domestically (at both state and federal level) and internationally; the rights of an injured party to recover compensation as a result of ionising radiation; and the possible effect upon civil liberties. Concludes that Australia's legal system is not capable of coping with the issues and problems created by the development of the nuclear industry and suggests that the Australian Law Reform Commission should investigate reforms.

313. CROMMELIN, M. AND NICHOLSON, R.D., 1981. REPORT ON URANIUM MINING LAWS IN THE NORTHERN TERRITORY, AGPS,

CANBERRA, 177p.

Reports on the legal regime governing uranium mining in the NT, and discusses cases of overlap or duplication between Commonwealth and Territory laws and administrative procedures. Adopts a 'functional' approach in that the laws and procedures considered are dealt with in groups according to the different functions they have in relation to the uranium mining industry in the NT, rather than being assessed individually. Divides the report into functional sections entitled: physical context; legal context; uranium mining operations; and public impact. Includes a list of persons consulted in preparation of this report. Comments on some principal findings and recommendations of the Ranger Inquiry and on the Coordinating Committee for the Alligator Rivers Region's updated schedule of environmental requirements for the Ranger Project.

314. DENISON AUSTRALIA PTY LTD, 1984. INDUSTRY POSITION ON THE CODE OF PRACTICE ON RADIATION PROTECTION IN THE MINING AND MILLING OF RADIOACTIVE ORES (1980) AND THE GUIDELINES TO THIS CODE OF PRACTICE, IN AUSTRALIAN MINING INDUSTRY COUNCIL, NUCLEAR CODES AND GUIDELINES WORKSHOP, CANBERRA, p86-92.

Identifies and discusses two areas of confusion within the Code of Practice on Radiation Protection in the Mining and Milling of Radioactive Ores (1980): its definition of hazard and the misinterpretation of the International Commission on Radiological Protection's recommendations concerning controlled and supervised areas and working conditions A and B. Discusses the interpretation and implementation of guidelines associated with the Code, argues that they are intended to be advisory, and notes the possibility of incompatibility between the views of the persons responsible for radiation protection and the advice offered in the guidelines themselves. Argues in favour of the best practical radiation safety in formulating guidelines. Discusses some areas which it is claimed are not addressed by the guidelines, and recommends that the guidelines should not be seen as compulsory and that Radiation Safety Officers should be free to exercise their professional judgement. States that there is a need for specific guidelines in the technical application of the Code's basic dose equivalent limits, and that the internal workings and organisational structure of mining companies should be excluded from the guidelines. Argues in favour of closer consultation between the industry and government to ensure optimal radiation protection guidelines.

315. DEPARTMENT OF HOME AFFAIRS AND THE ENVIRONMENT, 1984. DEVELOPMENT OF NUCLEAR CODES OF PRACTICE UNDER THE ENVIRONMENT PROTECTION (NUCLEAR CODES) ACT 1978, IN AUSTRALIAN MINING INDUSTRY COUNCIL, NUCLEAR CODES AND GUIDELINES WORKSHOP, CANBERRA, p68-85.

Outlines the background to the Environment Protection (Nuclear Codes) Act 1978, the development of codes under the Act, their implementation and the development of guidelines to the Codes. Reviews the Codes (and guidelines) approved to date: the Radiation Protection Code (1980), the Code of Practice for the Safe Transport of Radioactive Substances (1982), and the Radioactive Waste Management Code (1982). Notes that industry comment on the guidelines has been very limited.

316. GEE, F.J., 1984. AN INDUSTRY VIEWPOINT ON THE CODE OF PRACTICE FOR THE SAFE TRANSPORT OF RADIOACTIVE SUBSTANCES, IN AUSTRALIAN MINING INDUSTRY COUNCIL, NUCLEAR CODES AND GUIDELINES WORKSHOP, CANBERRA, p48-54.

Considers the formulation and aims of the Code of Practice for the Safe Transport of Radioactive Substances, praises its philosophy but argues that transport of radioactive wastes is an over-legislated facet of the uranium industry (which the author claims is itself 'staggering under the reams of legislation'). Argues that the extra measure of control has not brought about any further increase in safety. Details how Queensland Mines Ltd's operations are affected by the Code.

317. GREY, A.J., 1979. COMMENT ON COMMONWEALTH AND STATE CONTROLS OVER URANIUM EXPLORATION AND PRODUCTION, AUSTRALIAN MINING AND PETROLEUM LAW JOURNAL, 2, 1, p58-62.

Comments on three areas of Commonwealth and state control over uranium exploration and production, namely the legislative mechanisms which provide for right, title and interest in respect to uranium deposits, environmental controls over the development of uranium projects, and foreign investment regulations as they apply to uranium. Expresses concern regarding authority to mine under present legislation, claiming this is merely an operating authority rather than a legal right, title or interest which could legally stand as security for development loans. Reviews legislation and agreements which impose conditions and restrictions on uranium mining operations in order to minimise their impact on the

physical and social environment, and which provide for monitoring and enforcing of those conditions and restrictions. Outlines the federal government's policy on foreign investment in the Australian uranium industry, and corrects levels of ownership of the Jabiluka project cited by Nicholson (see No. 324). Argues for some flexibility regarding the definition of 'Australian equity' and 'foreign interests', for the purposes of applying equity rules to uranium projects.

318. HALLAM, J., 1978. URANIUM MINING AT KAKADU: WHERE LAWS FALL DOWN, CHAIN REACTION, 4, 1, p33-35.

Claims that legislative amendments and delays in granting Aboriginal land have seriously weakened the capacity of Aborigines to resist mining on traditional land. Critically reviews legislation relevant to uranium mining, including the National Parks and Wildlife Conservation Act 1975 and three environmental protection acts. Concludes that the legislation fails to protect the environment from the polluting effects of mining and fails to set up a national park and in fact makes the prospect of a park even more remote. Claims that secrecy provisions and lack of effective independent monitoring means that uranium miners will be able to break the regulations with impunity.

319. HAMILTON, D.J., 1985. THE DEVELOPMENT OF THE NEW RADIATION PROTECTION LEGISLATION IN SOUTH AUSTRALIA, RADIATION PROTECTION IN AUSTRALIA, 3, 1, p39-45.

Outlines the development of new legislation governing radiation protection in South Australia, and briefly describes its principal features and some of its philosophical bases. Discusses some of the strategies used to implement controls based on ICRP 26 (International Commission on Radiological Protection - Publication No. 26), and to integrate them with codes and standards developed prior to ICRP 26. Discusses in detail the implementation of the ALARA (As Low As Reasonably Achievable) principle.

320. LUMB, R.D., 1979. URANIUM MINING: LEGISLATIVE AND CONSTITUTIONAL ASPECTS, AUSTRALIAN LAW JOURNAL, VOL. 53, FEBRUARY, p84-91.

Reviews legislative and constitutional issues relevant to uranium mining in Australia. Outlines the legislative basis for federal government involvement in the minerals and energy industries. Describes uranium's characteristics and the nuclear fuel cycle,

and identifies the mining, milling and sale of uranium, associated environmental conditions, international nuclear safeguards, and the NPT as being of current concern within the Australian legal system. Reviews the Atomic Energy Act 1953 and the Environment Protection (Nuclear Codes) Act 1978 which form the basis for regulation of all steps in the uranium cycle. Outlines and assesses the constitutional powers which form the basis for this legislation (defence, trade and commerce, external affairs and territories), and speculates about possible future state challenges to Commonwealth control of nuclear power generation.

321. MCNAMARA, P., 1985. IONISING RADIATION FROM URANIUM MINING IN AUSTRALIA - SOME LEGAL ISSUES, RADIATION PROTECTION IN AUSTRALIA, 3, 3, p100-108.

Briefly describes the dangers confronting uranium mine and mill workers, and summarises the Code of Practice on Radiation Protection in the Mining and Milling of Radioactive Ores (1980), and explains its legal status. Presents a brief description of preventive legal mechanisms in a number of Western countries where uranium is mined or where nuclear facilities are operated. Argues that criminal sanctions attaching to the Code may not be readily enforceable in practice since, although technically adequate for the purposes of radiation science, the Code is not legally 'watertight'. Refers to types of injuries which may flow from exposure to ionising radiation, and argues that breaches of the Code will not necessarily result in civil liability on the part of a mine operator to pay common law damages to workers injured by exposure to ionising radiation. Makes some suggestions for reform of the legislation.

322. MORISON, I.W., 1984. DEVELOPMENT AND APPLICATION OF THE WASTE CODE, IN AUSTRALIAN MINING INDUSTRY COUNCIL, NUCLEAR CODES AND GUIDELINES WORKSHOP, CANBERRA, p16-30.

Discusses the objectives and general approach underlying the Australian Code of Practice on the Management of Radioactive Wastes from the Mining and Milling of Radioactive Ores (1982) as a vehicle for meeting required levels of waste management practice, and provides some background on how the Code was developed.

323. NELMES, R.H., 1984. ENVIRONMENT PROTECTION (NUCLEAR CODES) ACT 1978: CODE OF PRACTICE FOR THE SAFE TRANSPORT OF RADIOACTIVE MATERIALS, IN AUSTRALIAN

MINING INDUSTRY COUNCIL, NUCLEAR CODES AND GUIDELINES WORKSHOP, CANBERRA, p37-47.

Outlines the background and formulation of the Code of Practice for the Safe Transport of Radioactive Substances (1982) and provides a detailed review of its functions.

324. NICHOLSON, R.D., 1979. COMMONWEALTH AND STATE CONTROLS OVER URANIUM EXPLORATION AND PRODUCTION. AUSTRALIAN MINING AND PETROLEUM LAW JOURNAL, 2,1, p33-53.

Attempts to examine the legal controls relating to uranium exploration and production extant in Australia as a result of the Fraser government's (1977) decision to permit further development of uranium under strictly controlled conditions. Reviews relevant provisions of the Australian Constitution, notes that the development of natural resources is the responsibility of the states but that effective development requires the co-operation of federal, state and local governments. Reviews the history of Commonwealth control over uranium and the Atomic Energy Act 1953 and the Environment Protection (Impact of Proposals) Act 1974, which are the source of Commonwealth legal controls on milling, treatment and utilisation of uranium in the states. Discusses legislation pertaining to sales, export authorities and safeguards requirements, and notes that exchange controls, income tax laws and foreign investment policies also affect mining ventures. Presents a similar review of legislation for Commonwealth control in territories. Outlines relevant state controls, considers state mining acts, notes additional state legislation, such as Western Australia's Nuclear Activities Regulation Act 1978, and refers to various acts relating to public health and to radioactive substances. Discusses the points at which legal controls with respect to uranium can be imposed, suggests reasons for apparent overlap of regulations between the various parties, reports that a thorough legislative base has now been laid by the Commonwealth and Western Australia, and lists those legal issues which it is anticipated will be the focus of attention in the future.

325. NICHOLSON, R.D., 1981. COMMENT ON URANIUM - TRANSPORT AND OTHER RECENT DEVELOPMENTS, AUSTRALIAN MINING AND PETROLEUM LAW JOURNAL, VOL. 3, p320-328.

Reviews the legal regulations (including international regulations) presently relating to transport of uranium by road, rail, water, air and post. Critically reviews the Northern Territory Uranium Mining (Environmental

Control) Act 1979 and suggests that some amendment is necessary. Reviews proposed amendments to the Atomic Energy Act 1953, and makes some suggestions to minimise any overlap and duplication between Commonwealth and state law or administration.

326. RANGER URANIUM MINES PTY LTD., 1984. A REVIEW OF THE CODE OF PRACTICE FOR THE MANAGEMENT OF RADIOACTIVE WASTES FROM THE MINING AND MILLING OF RADIOACTIVE ORES, IN AUSTRALIAN MINING INDUSTRY COUNCIL, NUCLEAR CODES AND GUIDELINES WORKSHOP, CANBERRA, p31-36.

Concentrates on the philosophy of the Code of Practice on the Management of Radioactive Wastes from the Mining and Milling of Radioactive Ores (1982) and its accompanying guidelines rather than on the details or wording of clauses. Argues that some change to the Code is necessary but that the objective of managing radioactive wastes in an environmentally acceptable manner will be achieved mainly by wise and responsible interpretation of the intent of the Code and its guidelines rather than by a major revision of its wording.

327. REED, D., 1980. AUSTRALIA'S MINERAL RESOURCES: A REPORT ON LAW AND POLICY, REPORT PUBLICATIONS, CANBERRA, CHAPTER 11, URANIUM, p74-90.

Examines the constitutional position relating to uranium mining, the federal government's policies in relation to uranium development, and the legal framework established to regulate the development of Australia's uranium resources. Briefly considers state laws and policies. An appendix contains the text of some of the relevant legislation.

328. RICHARDSON, J.E., 1972. CONSTITUTIONAL AND ASSOCIATED ISSUES, IN PEASLEE, D.C. (ED), SYMPOSIUM PAPERS ON THE ROLE OF NUCLEAR ENERGY IN AUSTRALIA'S DEVELOPMENT, SOCIETY FOR SOCIAL RESPONSIBILITY IN SCIENCE, CANBERRA, p11.1-11.21.

329. RICHARDSON, J.E., 1973. AUSTRALIAN CONSTITUTIONAL AND ASSOCIATED ISSUES, ATOMIC ENERGY IN AUSTRALIA, 16, 1, p14-26.

Presents a highly detailed examination of the constitutional powers of the Commonwealth and the states to promote and regulate the search for and production of nuclear raw materials and the use of nuclear energy for various purposes in Australia. Also examines the extent to which the division of

legislative powers between the Commonwealth and states affects the development of a national integrated policy. Includes a description of the functions of the AAEC.

330. SEXTON, M., 1978. URANIUM CONTRACTS: IS OUR FUTURE MORTGAGED?, LEGAL SERVICE BULLETIN, VOL. 3, DECEMBER, P229-231.

Discusses how binding uranium agreements are on successive Australian governments, and argues that the principle of 'parliamentary sovereignty' will make it very difficult to effectively bind any future government to its predecessors' decisions. Reviews the types of contract likely to be involved, the legislation that might be employed to bind future governments, and options open to governments which do not wish to be bound by their predecessors' agreements.

331. SONTER, M., 1984. THE NUCLEAR CODES AND GUIDELINES, IN AUSTRALIAN MINING INDUSTRY COUNCIL, NUCLEAR CODES AND GUIDELINES WORKSHOP, CANBERRA, p93-103.

Critically reviews previous nuclear codes and argues in favour of input by members of the mining industry during the formulation of future codes and guidelines. Reviews the Radioactive Waste Management Code (1982) and its guidelines and argues that they restrict the Code's flexibility and are being misused through being interpreted as regulations rather than as alternatives. Argues in favour of performance standards as opposed to detailed design requirements for the establishment of authorisation/approval conditions, claiming that choice of the best method of radiation control depends upon the project and may well change with time, and states that the more detailed the conditions the more inflexible the authorisation becomes to apply. Provides examples of problems that might arise from details in published and draft guideline texts, and suggests some changes to the guidelines.

332. SWINDON, T.N., 1984. THE RADIATION PROTECTION (MINING AND MILLING) CODE, 1980, IN AUSTRALIAN MINING INDUSTRY COUNCIL, NUCLEAR CODES AND GUIDELINES WORKSHOP, CANBERRA, p1-15.

Outlines the formulation and purpose of the Radiation Protection Code (1980), reviews radiation protection standards and derived limits, and summarises the responsibilities of operators and managers and the duties of radiation safety and ventilation officers under the Code. Lists aspects of the Code which have

been brought to the attention of the Commonwealth/State Expert Committee on the Radiation Protection Code and notes that the committee will review the guidelines presently associated with the Code at the same time as it revises the Code itself. Guidelines associated with the Radiation Protection Code (1980) are listed in an appendix.

333. WILLHEIM, E., 1978. URANIUM: A NOTABLE AUSTRALIAN DECISION, ENVIRONMENTAL POLICY AND LAW, 4, p104-108.

Examines the background to the Ranger Inquiry, including the legislation under which it was appointed. Considers the environmental aspects of the Australian government's decision to go ahead with mining and export of uranium and the implementing legislation, and concludes that the details of the legislation owed much to the Ranger Inquiry and public participation in it; argues that the public inquiry technique achieved its purpose by improving the quality of the final decision. Reviews the Environment Protection (Impact of Proposals) Act 1974, favourably compares it with the United States National Environmental Policy, and notes the Act's provision for public inquiries into matters of environmental significance. Describes the terms of reference, the conduct and the Commissioners of the Ranger Inquiry, and briefly reviews its major findings and recommendations. Discusses the legislation relevant to six aspects of general interest within the Fraser government's uranium decision and the implementing legislation: nuclear proliferation and safeguards; the proposed new Kakadu National Park; measures for the protection of the Aboriginal people in the area of the uranium deposit; the question of waste disposal; nuclear terrorism; and special environmental controls.

334. WILLIS, J.L., 1981. DEVELOPMENT OF CODES OF PRACTICE UNDER THE ENVIRONMENT PROTECTION (NUCLEAR CODES) ACT 1978, RADIATION PROTECTION IN AUSTRALIA, NO. 1/82, p19-31.

Presents an overview of the development of uniform national codes of practice for nuclear activities. Includes a resume of the provisions of the Environment Protection (Nuclear Codes) Act 1978, and discusses the machinery established to develop codes and progress to date on the codes of practice on Radiation Protection in the Mining and Milling of Radioactive Ores, for the Safe Transport of Radioactive Materials, and on the Management of Radioactive Waste from the Mining and Milling of Radioactive Ores.

335. WISE, S.J.C., 1979. THE MINING AND EXPORT OF URANIUM - THE AUSTRALIAN POSITION, INTERNATIONAL BUSINESS LAWYER, MARCH, p18-33.

Describes the development of laws and other government controls (both federal and state) over the mining and export of Australian uranium. Discusses the Constitutional background, outlining relevant Commonwealth powers, and briefly outlines the history of uranium mining and uranium policy. Outlines in detail federal government legislation and policy in a range of areas related to uranium, including Environmental Protection, Aboriginal Land Rights, Foreign Ownership, Export Controls and Nuclear Safeguards. Discusses a number of aspects of uranium project development at the state level, including Loan Council Borrowing Arrangements, Environmental Protection, Local Planning Controls and state mining legislation.

Cross References

48, 112, 171, 226, 246, 249, 254, 287, 304, 427, 440, 634, 671, 673, 674, 678, 688, 717, 723, 825

Australian Labor Party Policy

336. ANON., 1977. LABOR PARTY'S ANTI-URANIUM ATTITUDE HARDENS UP FURTHER, ENERGY (CANBERRA), VOL. 4, MARCH, p7-8.

Reports recent developments which indicate that the Labor Party's attitude to uranium development has hardened. Reports Gough Whitlam's rationale for adopting Canadian export guidelines for Australian uranium, and claims by the Fraser Government that the opposition's safeguards proposals are very similar to those issued by the government.

337. ANON., 1982. THE URANIUM CONTROVERSY, LABOR STAR, 12 AUGUST, p7,9.

Reproduces the text of the motion on uranium policy presented to the August 1982 ALP National Conference, and the speech delivered on the motion by ALP Victorian Secretary Bob Hogg. Hogg's major concerns were to emphasise that the motion was not 'pro-mining', and to point out that there was a pressing need for the ALP to examine how the policy would actually be implemented in practice.

338. ANSON, S., 1982. URANIUM SWITCH, THE COST IN THE ELECTORATE, SOCIALIST OBJECTIVE, 2,3, p4.

Argues that there is increasing opposition to uranium mining in the electorate, and that the ALP's 1982 National Conference decision to modify its anti-uranium mining stand will damage, rather than enhance, its electoral prospects.

339. BATES, A., 1978. THE ELECTION ISSUE THAT NEVER WAS, NEW JOURNALIST, NO. 30, APRIL, p4-6.

Reviews the ALP's 1977 election campaign with regard to the uranium mining issue and suggests that press coverage protected the 'issue avoidance' policy of the Liberals and, in combination with a reluctance on the part of most Labor politicians to support an anti-mining stance, effectively killed what had seemed a promising electoral issue for the ALP. The author demonstrates the importance of uranium as a major issue of public concern at the start of the election campaign, and argues that the ACTU's stance on uranium gave the Fraser government outward justification to call an early election. Reviews the effectiveness of the ALP's early campaign material

and strategy on the uranium issue and shows how Labor, with the exception of front-bencher Tom Uren, subsequently allowed uranium to become an electoral non-issue.

340. CAMILLERI, J., 1982. URANIUM SWITCH, THE COST IN CREDIBILITY, SOCIALIST OBJECTIVE, 2,3, p5.

Analyses the 1982 ALP National Conference decision on uranium mining, which is seen as reflecting the ability of mining interests to exert pressure on sections of the ALP leadership. Attacks the decision on the grounds that it encourages Australian involvement in other stages of the nuclear fuel cycle, that 'safeguards' designed to deal with waste disposal and proliferation problems are ineffective, and that the electoral implications for Labor will be negative.

341. CAMILLERI, J. AND ROBERTS, G., 1982. ALP U TURN, CHAIN REACTION, VOL. 29, SPRING, p10-11.

Analyses the ALP's July 1982 decision on uranium and puts forward an explanation for its change of policy. Critically reviews the new policy, questions the 'difficulties' attributed by the document to the repudiation of existing contracts, and criticises the safeguards set out in the policy amendment which, in the opinion of the authors, enables a future Labor government to proceed with mining and export of uranium. Discusses the ALP's rank and file 'rebellion' against the 1982 National Conference uranium decision and analyses its implications for ALP factional politics. Claims that the new policy resulted from mining company lobbying of ALP front-benchers Hawke and Keating and from pressure for a change from certain elements of the media and Labor's right wing.

342. CHADWICK, P., 1983. THE PM'S SEVEN-YEAR U-JOURNEY, AGE, 7 NOVEMBER, p4.

Traces the position of Prime Minister Hawke on the uranium issue over the period 1977-1984 by quoting from addresses he made to Labor Party forums and from other public statements.

343. COLLINS, R., 1984. COLLINS' LOST CHANCE TO PUSH FOR MINES, WEEKEND AUSTRALIAN, 14 JULY, p7.

Presents the text of a speech by Bob Collins, Northern Territory ALP Parliamentary Leader, which he was to deliver to the ALP National Conference. Collins argues

for acceptance of a committee report which recommends acknowledgement of the Australian uranium mining industry and an unequivocal commitment to its continued existence.

344. DALTON, L., 1984. THE ALP'S MELTDOWN ON POLICY, AUSTRALIAN SOCIETY, 1 MAY, p21-22.

Predicts that a policy to continue uranium mining will be passed at the ALP National Conference in July but that opposition will remain both inside political parties and within the community. The two main issues of concern remain the irreversible environmental damage associated with uranium mining, and the link between nuclear power and nuclear weapons. The article is critical of the ASTEC Inquiry, alleging it to be a rubber stamp for government policy. Claims that Australian nuclear safeguards are now less effective than in 1976, and that once uranium leaves Australia no specific safeguards can apply to it.

345. DEANS, A., 1983. THE URANIUM ISSUE SET TO EXPLODE AGAIN, BULLETIN, 2 AUGUST, p28-30.

As uranium producers are being invited by United States power utilities to bid for long term sales contracts, pressure mounts on the Australian government to clarify its stance on uranium. Reviews prospects for nuclear power and for Australia's uranium industry, both considered favourable, and briefly discusses the Roxby Downs project and its implications for Labor's uranium policy.

346. FRY, G., 1984. THE HAWKE GOVERNMENT'S NUCLEAR-FREE PACIFIC PROPOSAL: ARE THE CRITICS RIGHT?, LABOR FORUM, 6,3, p1-4.

Critically reviews the Hawke government's proposals for a nuclear free South West Pacific, and outlines a more radical proposal in which the sale of uranium, amongst other nuclear-related activities, would be prohibited.

347. HASELHURST, D., 1983. SHAREHOLDERS FACE THE LABOR URANIUM CRUNCH, BULLETIN, 1 MARCH, p93-96.

Outlines the concern being expressed by uranium mining companies and the NT government at the prospect of a Labor government being elected in March 1983. Reviews existing ALP policy on uranium, and suggests that the anti-uranium lobby will be sufficiently powerful to outweigh the pragmatic position taken by ALP leaders Hawke and Keating. Details the mining

companies which would be hit by restrictions on uranium exports, and discusses the implications for the NT economy and Australian exports. Notes the suggestion of one hopeful mining company executive that policies proposed whilst in opposition are often reconsidered when in government due to economic pressure.

348. HYWOOD, G., 1984. HAYDEN'S CASE FOR URANIUM, AUSTRALIAN FINANCIAL REVIEW, 5 JULY, pl, 8.

Discusses a number of position papers and draft amendments on the uranium issue prepared by various groups and factions within the ALP in advance of its July 1984 National Conference.

349. HYWOOD, G., 1984. HAWKE'S URANIUM STRATEGY STARTS TO BEAR FRUIT, AUSTRALIAN FINANCIAL REVIEW, 1 JUNE, pl, 3.

350. JONES, B., 1983. BITTER CLASH PUTS MINES IN DOUBT, NORTHERN TERRITORY NEWS, 2 NOVEMBER, p6.

Reports that members of the federal Parliamentary Labor Party have been warned that failure to endorse Cabinet's decision on the Roxby go-ahead would jeopardise both the South Australian Bannon government and ultimately the federal Labor government. Outlines the contents of two discussion papers (for and against uranium mining) given to Labor caucus members to help them decide. The article also briefly reviews a third discussion paper which proposes that effective waste disposal may be simpler than repairing the damage caused by fossil fuels.

351. KEEGAN, D., 1984. URANIUM STANCE THREATENS INTERNATIONAL CREDIT RATING, WEEKEND AUSTRALIAN, 30 JUNE, pl7.

352. KELLY, P., 1986. URANIUM HELPS FORGE THE NEW-LOOK LABOR, AUSTRALIAN, 29 AUGUST, pl1.

353. KITNEY, G., 1981. ALP MOVES TO DROP URANIUM POLICY, NATIONAL TIMES, 13-19 DECEMBER, p3.

Reports on the efforts of key figures in the ALP to have its anti-uranium policy dropped at the 1982 National Conference, because of their belief that the existing policy would represent a serious liability for Labor in the next federal election.

354. KITNEY, G., 1982. LABOR PLAN TO SCRAP URANIUM CONTRACTS. NATIONAL TIMES, 25 APRIL-1 MAY, p39.

355. KITNEY, G., 1982. THE LEFT URGES CAUCUS NOT TO ALTER POLICY ON URANIUM, NATIONAL TIMES, 16-22 MAY, p6.

Summarises the contents of a letter circulated by Labor party front-bencher, Tom Uren, to ALP Caucus members. Uren argues that concerns regarding five major aspects of the uranium and nuclear industries - nuclear proliferation, waste disposal, environmental effects, health dangers, and economic prospects - give just as much ground for concern as they did in 1977 when Labor adopted its existing uranium policy.

356. KITNEY, G., 1983. LABOR HEADING FOR A SOFTER URANIUM STAND, NATIONAL TIMES, 2-8 SEPTEMBER, p6.

Outlines the positions adopted, and the arguments put forward, by groups within the ALP pressing for a softening of Labor's anti-uranium policy, and by those pressing for retention of the current policy.

357. KITNEY, G., 1983. DECLINE AND FALL: HOW THE LEFT WAS LOST, NATIONAL TIMES, 11-17 NOVEMBER, p4,5.

358. LEEKS, R. AND HAYES, M., 1984. EXCHANGING URANIUM FOR NON-PROLIFERATION, CHAIN REACTION, VOL. 36, FEBRUARY/MARCH, p32-34.

Provides a summary of sections of a longer paper published elsewhere by the authors (see next entry).

359. LEEKS, R. AND HAYES, M., 1984. URANIUM AND LABOR, AUSTRALIAN LEFT REVIEW, VOL. 87, AUTUMN, p12-18.

Argues that despite government claims to the contrary, Australian uranium exports will contribute to nuclear proliferation and help maintain the status quo of the nuclear arms race. Reviews the Caucus decision (November 1983) to allow the development of the Roxby Downs uranium mine and the continuation of Ranger, and claims that this represented a departure from former ALP policies and a victory for those ALP factions and federal government departments appearing to have a financial interest in the uranium industry. Lists and reviews various papers circulated to Caucus members prior to the 1983 meeting. Outlines the hypotheses upon which the Hawke uranium policy is based, and presents detailed counter arguments to each. Comments on mining company claims that Australia's withdrawal from uranium supply would cast doubt on its credibility as a trading partner, speculates on the government's capacity to act 'as an independent and sovereign entity' among the world community of nations, and suggests that allowing an

industry to develop which cannot be terminated without impairing Australia's international economic standing casts some doubt on the credibility of government institutions. Argues that the Hawke policy stifles public debate on the interrelated military and peaceful end uses of uranium. Proposes measures Australia could take to reduce the risk of nuclear disaster, argues that Australia's withdrawal from uranium supply could lead to a reduced dependence on nuclear power and draw the world's attention to the dangers of nuclear war.

360. LEGGE, K., 1986. URANIUM: PM WANTS PARK MINED, NATIONAL TIMES ON SUNDAY, 14 SEPTEMBER, p1-2.

Reports that certain senior members of the Hawke government favour uranium mining in Kakadu National Park in direct opposition to ALP policy on park management and on uranium. Notes that the NT government is in favour of exploiting mineral resources within park boundaries.

361. LOGUE, P., 1984. HAWKE GIVES IN ON URANIUM, AUSTRALIAN, 13 JUNE, p1,2.

362. MACCALLUM, M., 1981. THEY WANT TO CHANGE BUT CAN THEY? [ALP REVERSAL OF ITS ANTI-URANIUM STAND], REVIEW (MELBOURNE), 18-24 DECEMBER, p4.

363. MCCARTHY, P., 1979. DUNSTAN'S URANIUM TURNABOUT THREATENS SA LABOR FRONT, NATIONAL TIMES, 28 JANUARY-3 FEBRUARY, p15.

364. O'REILLY, D., 1987. LABOR'S DILEMMA AS ABORIGINES SIGN UP TO MINE, BULLETIN, 13 OCTOBER, p24.

Argues that the support of some Aborigines in the NT for uranium mining creates a dilemma for ALP members who are opposed to uranium mining but support Aboriginal land rights, in that they must decide whether the right of these Aborigines to approve exploration and mining of uranium on their land should be over-ridden.

365. PEDEVREXAKIS, P., 1982. ALP URANIUM POLICY, CHAIN REACTION, VOL. 28, WINTER, p21.

Argues that ALP leader Hayden and senior parliamentarians Bowen, Keating and Button have always opposed the anti-uranium mining policy adopted by Labor at its 1977 National Conference and that they, and Bob Hawke, will attempt to have the policy changed at the 1982 National Conference. Briefly

reviews the arguments likely to be put forward by pro- and anti-uranium groups within the ALP, and attempts to gauge the strength of each among Conference delegates.

366. REID, A., 1983. TWO REBELS CHALLENGE URANIUM VOTE, BULLETIN, 6 DECEMBER, p32-34.

Presents the content of letters written to Prime Minister Hawke by Labor MPs Scott and Hand, challenging his position on uranium policy, the recent ALP Caucus decision on Roxby Downs, and involvement in uranium trade with France.

367. SHERIDAN, G., 1984. BEHIND THE GREAT URANIUM DEBATE, WEEKEND AUSTRALIAN, 16-17 JUNE, p21.

Reviews ALP uranium policy which it claims is ambiguous and confusing. Argues that the ALP's previous anti-uranium stance had been a policy of a party in opposition, and now sat uneasily with the degree of uranium mining activity going on in Australia. Reviews anti-uranium views of the ALP left wing and the more pragmatic views of the right, and speculates on the outcome of the ALP National Conference uranium debate, but suggests that ALP opposition to uranium exports to France will be unanimous. Outlines the views of the Australian Mining Industry Council on government uranium policy and its implications for the Australian economy.

368. STEKETEE, M., 1983. THE URANIUM ISSUE WON'T GO AWAY, SYDNEY MORNING HERALD, 15 JULY, p9.

369. SUMMERS, A., 1981. BITTER URANIUM FIGHT LOOMS WITHIN ALP, AUSTRALIAN FINANCIAL REVIEW, 11 DECEMBER, p3.

Reviews differences of opinion within the ALP on the uranium issue highlighted by the recent ACTU decision to lift uranium handling bans. Examines the reasons for, and discusses possible courses of action to reverse, the ACTU anti-uranium policy, and reports views on uranium of ALP factions led by Hayden, Hawke and Keating and by anti-uranium campaigner Uren. Discusses ALP members' suggestions for modifying Labor's uranium policy, and the role of the Australian Democrats. The author suggests that the ACTU decision will give ALP Leader Hayden an opportunity to reopen the party debate on uranium policy.

370. TOOHEY, B., 1974. URANIUM: THE REAL STORY, MINERS RECORK THE CHAMPAGNE, AUSTRALIAN FINANCIAL REVIEW, 11 OCTOBER, p1,16.

Outlines differences between Prime Minister Whitlam, who appears anxious to sell Australian uranium and 'quibble about ownership later', and Minerals and Energy Minister Connor whose intention to establish enrichment facilities in Australia has inhibited early sales of Australian uranium.

371. UREN, T., 1986. LABOR LEADER SUPPORTS ARU URANIUM ACTION [ADDRESS GIVEN AT AUSTRALIAN RAILWAYS UNION, QUEENSLAND BRANCH, CONFERENCE], AUSTRALIAN RAILWAYS UNION FEDERAL OFFICE NEWS, VOL. 14, JUNE, p13, 15.

372. WALSH, M., 1984. URANIUM: ALP RISKS A FALL IN TAKING THE HIGH GROUND, SYDNEY MORNING HERALD, 14 JUNE, p9.

373. WALTERS, P., 1983. URANIUM MINERS WAIT WHILE THE GOVERNMENT SORTS OUT THE MESS, SYDNEY MORNING HERALD, 1 JUNE, p6.

Reviews the Hawke government's efforts to formulate a uranium policy which will satisfy the ALP's anti-uranium left wing and maintain Australia's credibility as an international uranium supplier and trading partner with the EEC. Discusses the most immediate dilemma, that of uranium exports to France, and three recently established committees investigating nuclear safeguards, government uranium industry policy, and new Australian nuclear legislation. Suggests that the Labor government plans to approve development of Roxby Downs next, and reports NT Chief Minister Paul Everingham's claim that uranium mining would generate benefits for the NT at no cost to the federal government.

374. WALTON, A., 1987. COCKTAIL EXPLOITATION: URANIUM, ABORIGINAL LAND RIGHTS, GOLD, DIAMONDS AND NATIONAL PARKS, ABORIGINAL LAW BULLETIN, VOL. 26, JUNE, p6-7.

Outlines exploration activity of CRA Ltd in and around the Ruddell River National Park in the Pilbara region of Western Australia, which is aimed at discovering uranium and other minerals. Examines the implications of this activity for Western Australian and federal Labor Party policies on uranium, and for the Hawke government's approach to uranium exploration and mining in Kakadu National Park.

Cross References

16, 38, 84, 124, 133, 139, 146, 161, 171, 183, 207,
214, 221, 227, 230, 231, 232, 311, 542, 566, 778

Australian Democrats Policy

375. CHIPP, D., 1984. URANIUM: HOW THE FIGHT GOES ON, HABITAT AUSTRALIA, 12, 1, p3.

Attacks the Labor government's November 1983 decision on uranium mining, on the grounds that there are moral objections to mining which should over-rule economic or party political considerations. In particular, there is a link between uranium mining, nuclear energy and nuclear weapons; examples are cited from recent history in support of this claim. There are also economic arguments against development of nuclear energy, e.g. its high capital costs, its inability to substitute for other energy sources (especially oil) in many of their uses, and its unsuitability for poor, developing countries. Australia's most significant contribution to non-proliferation would be to withdraw from the nuclear fuel cycle and demonstrate that energy security can be achieved more fully, quickly and cheaply without nuclear power.

376. MASON, C., 1977. THE URANIUM ISSUE, AUSTRALIAN DEMOCRATS NATIONAL JOURNAL, 25 JULY, p4-7.

Presents a position paper on the uranium issue and some suggested voting options for a proposed ballot of party members. Explains why the Australian Democrats have decided to concentrate on the question of whether to export Australian uranium. Outlines the relevant issues including reactor safety and efficiency (especially breeder reactors), the policy of Carter and Fraser supporting unlimited uranium supply to avoid a 'plutonium economy', nuclear waste and fuel reprocessing problems, fusion power and the feasibility of alternative energy sources. Presents three common viewpoints on mining and export of uranium, each with typical criticisms, followed by a list of suggested options for a ballot on uranium export and on what should happen to the proceeds from the industry.

Cross References

369, 837

Trade Union Policy

377. ANON., 1976. METAL WORKERS OPPOSE URANIUM [EXTRACT FROM VICTORIAN BRANCH OF AMALGAMATED METAL WORKERS UNION SUBMISSION TO RANGER INQUIRY], ARENA, NO. 43, p11-18.

Explains the opposition of one trade union, the Amalgamated Metal Workers Union, and subsequently that of the ACTU to the development of the nuclear industry and to mining and export of Australian uranium. Details the motions passed concerning these issues at various union meetings including the 1975 ACTU Congress, and claims that the trade union movement will strongly oppose uranium mining regardless of the Ranger Inquiry outcome. In a discussion concerned with energy and employment, the article claims uranium mining would not have an observable effect on the level of unemployment in Australia.

378. ANON., 1976. TRAINS OUT - ROW OVER URANIUM, SCOPE, 27 MAY, p7.

Claims that current public concern about the moral issues raised by uranium mining and export is largely due to the recent industrial action taken by Queensland railway workers. Reviews ACTU and Northern Territory and Western Australia Trades and Labor Council policies on uranium mining and expresses concern about proposed Japanese involvement in uranium mining, enrichment and waste disposal in Western Australia.

379. ANON., 1977. ACTU POLICY ON URANIUM, MODERN UNIONIST, 4, 3, OCTOBER/DECEMBER, p13, 15, 17.

380. AUSTRALIAN COUNCIL OF TRADE UNIONS, 1980. URANIUM, THE POLICY OF THE ACTU EXPLAINED, ACTU, MELBOURNE. 8p.

In September 1979 the ACTU congress passed a policy opposing mining and export of uranium, a policy based on the belief that Australian workers should not accept the risks or contribute to the dangers generated by mining and export of uranium. These perceived risks and dangers are listed in this leaflet which is designed to explain the policy to members and to encourage unions to implement the policy of non-cooperation with uranium mining. Areas dealt with include Aborigines, the environment, worker health, accidents at reactor sites, proliferation of nuclear

weapons, terrorism and the safe disposal of nuclear wastes.

381. AUSTRALIAN RAILWAYS UNION, 1975. ARU CAMPAIGNS AGAINST EXPORT OF URANIUM FOR NUCLEAR POWER, AUSTRALIAN RAILWAYS UNION FEDERAL OFFICE NEWS, 13, 6, OCTOBER, p1, 3, 5.

Presents an abridged version of a paper by Professor J.T. Edsall entitled 'Hazards of nuclear fission power and the choice of alternatives' in support of the Australian Railways Union's anti-uranium stand.

382. BRAY, P., 1983. THE ACTU AND THE POLICY PROCESS: A STUDY OF URANIUM, MELBOURNE JOURNAL OF POLITICS, VOL. 14, 1982/83, p68-78.

Reviews the factors determining the ACTU's uranium policy in the context of the broader policy-making process of the organisation. Briefly outlines the status of the ACTU's uranium policy and examines the influence on policy of the executive (which has been deeply divided over the issue), the ACTU president, the Congress, the external political environment, and the need to balance the conflicting attitudes of affiliated trade unions. Considers the feasibility of implementing the ACTU's uranium policy and its politically controversial nature, and comments specifically on Bob Hawke's role in uranium policy formulation during his term as ACTU President.

383. CARR, R., 1979. ACTU POLICY ON MINING UNLIKELY TO STICK, BULLETIN, 16 OCTOBER, p26-27.

Argues that anti-uranium forces in the ACTU have committed it to a moral position on uranium which cannot be defended in practice because of the unwillingness or inability of trade unions to enforce it. Three key unions are competing for coverage of the uranium industry workforce, and in their determination to retain or gain advantage will undermine attempts by anti-uranium unions to place bans on uranium mines.

384. DEUTSCHMANN, D., 1979. UNIONS TO FIGHT FRASER ON URANIUM, DIRECT ACTION, 20 SEPTEMBER, p3.

385. DONN, C.B., 1978. THE AUSTRALIAN TRADE UNION MOVEMENT AND URANIUM MINING, RESEARCH PAPER NO. 170, SCHOOL OF ECONOMIC AND FINANCIAL STUDIES, MACQUARIE UNIVERSITY, SYDNEY, 16p.

Examines the evolution and content of the

Australian trade union movement's policy on the mining and export of Australia's uranium up to February 1978, gives a detailed description of the Special Unions Conference of February 1978 which adopted the present policy, and briefly examines this policy and the forces that have shaped it.

386. GALLAGHER, C. AND NORTHEY, D., 1982. UNIONS, URANIUM AND YOU, CHAIN REACTION, NO.29, SPRING, p14-15.

Assesses the implementation and effectiveness of certain trade unions' anti-uranium policies, and discusses future strategies which might involve co-operation with anti-uranium groups in the community. Discusses possible reasons for the apparent lack of progress by the unions' anti-uranium movement since 1976, such as the use of scab labour, legislation restricting trade union activity and the Liberal government's determination to proceed with uranium mining and export. Identifies a need for increased cooperation between 'progressive' unions in formulation and implementation of strategies for action, including possible guerilla tactics (eg. cutting communications to mining companies), and advocates the stepping up of shop floor educational campaigns.

387. HARRIS, G., 1981. UNION BANS HOLD UP URANIUM PLANS, DIRECT ACTION, 14 OCTOBER, p15.

Assesses the effectiveness of union bans on the development of uranium reserves, and of the counter measures the Fraser government has taken and could resort to in order to ensure the fulfilment of export contracts. Outlines the depressed state of the international nuclear industry and attributes this 'crisis' to overproduction of nuclear resources due to a drop in demand and, most significantly, to worldwide concern regarding the threat posed by nuclear power. This situation, the author argues, places the unions in a strong position to continue their opposition to mining and export of Australian uranium.

388. HAWKE, R.J., 1978. URANIUM: AUSTRALIAN UNIONISM'S GREATEST DILEMMA, FREE LABOUR WORLD, NO. 335/336, MAY/JUNE, p10-11.

Outlines trade union debate and action, and government response to it, which led to the recently announced (1978) ACTU decision on mining and export of Australian uranium. Details the ACTU decision to honour existing contracts entered into before 1972; and stresses that any union labour involvement in new

mines will be conditional upon satisfactory safeguards and due consideration of Aboriginal land rights.

389. HURST, J., 1982. ACTU LIKELY TO RETREAT FROM HARDLINE OPPOSITION TO URANIUM, NATIONAL TIMES, 9-15 MAY, p6.
390. KORNHAUSER, L., 1979. ACTU GO-AHEAD FOR RANGER, NABARLEK, AUSTRALIAN FINANCIAL REVIEW, 7 SEPTEMBER, p1, 8.
391. MARTIN, K., 1983. THE ACTU POLICY THAT UNIONS PREFER TO IGNORE, SYDNEY MORNING HERALD, 28 DECEMBER, p9.

Analyses the likely attitude to the Roxby Downs project of ACTU-affiliated unions whose members are involved in developing and operating uranium mines. Argues that, on the basis of previous experience in Queensland and the Northern Territory, unions will not support an anti-uranium policy when their members are offered highly-paid jobs on uranium mining sites. Provides a summary of relevant uranium decisions over the period September 1975 to December 1983 to support this argument.

392. REES, A., 1984. WORKING AGAINST YELLOWCAKE, CHAIN REACTION, NO. 35, DECEMBER/JANUARY, p29-31.

Claims that many trade unions with members involved in the mining and export of uranium have anti-uranium policies. Considers recent actions by unionists aimed at halting uranium export, particularly at Darwin and Brisbane, during 1981, claims that these demonstrated strong 'shop-floor' support for anti-uranium policies and discusses the many limitations facing unions attempting to implement such policies. Expresses concern about levels of health and safety in uranium mining and milling operations, cites a number of 'yellowcake accidents', and argues that although trade union action may not be able to stop uranium mining and export, it shows the strength of opposition to uranium and nuclear power, disrupts the activities of mining companies and encourages others to oppose them.

393. WALKER, J., 1978. THE TRADE UNIONS AND THE URANIUM ISSUE, CURRENT AFFAIRS BULLETIN, 55,1, JUNE, p18-30.

Presents a detailed chronological review of the Australian trade union movement's involvement with the uranium issue. Discusses union views and actions ranging from the anti-uranium motion passed at the 1975 ACTU Congress to the eventual overturning of that

motion in 1978, providing details regarding positions adopted by individual unions and by state-level union organisations. The author suggests that the failure of the issue to sustain general support illustrates how the structure and interests of the trade union movement inhibits organisation around issues which are perceived to be removed from traditional union concerns.

394. WESTMORE, P., 1977. URANIUM AND THE UNIONS, QUADRANT, VOL. 21, OCTOBER, p53-54.

Reviews ACTU policy on uranium mining and export, identifies three trade unions that could directly affect uranium mining in the NT, and outlines their respective views on uranium. Speculates whether the moderate Australian Workers Union and Federated Ironworkers Federation, or the anti-uranium Miscellaneous Workers Union, will gain most influence and whether the mining companies will seek to encourage the 'moderate' unions to expand their role in the industry.

Cross References

29, 74, 135, 146, 187, 196, 225, 369, 398, 724, 817

Lobbyists and Lobby Groups

395. ANON., 1977. URANIUM AND AUSTRALIAN POLITICS, AUSTRALIAN LEFT REVIEW, NO. 61, SEPTEMBER, pl, 35.

Reviews Australian public opposition to uranium mining and nuclear power and examines the personalities and philosophies behind the movement. Briefly considers the profits to be gained from the uranium industry, claims that conservative forces have resorted to force and blackmail to still public and union debate on the uranium issue, and argues that such tactics will eventually discredit and bring defeat for those who espouse them.

396. ANON., 1977. URANIUM DEBATE, EDUCATION, [SYDNEY] NO. 58, 16 MARCH, p76-77.

Expresses concern that pro-nuclear information such as the Australian Uranium Producers Forum booklet 'Australia's Uranium Resources' (see No. 91) will predominate in schools due to the high level of financial backing and public relations expertise available to the pro-nuclear lobbyists. Claims teachers have a responsibility to inform themselves of all the arguments and ensure children receive realistic and balanced information. Reviews a number of nuclear accidents, highlights the dangers of plutonium and earlier stages of the nuclear fuel cycle, questions whether Australia really needs or would benefit economically from uranium mining and nuclear power, and casts some doubt on the statistics commonly quoted by pro-nuclear lobbyists.

397. ANON., 1977. URANIUM: AUSTRALIANS TOO LONG BAMBOOZLED BY BOMB BULLDUST, RYDGE'S CCEM: CONSTRUCTION, CIVIL ENGINEERING, MINING, VOL. 10, 1 SEPTEMBER, p7-10.

Reviews Australian and United States anti-nuclear campaigns which in the author's opinion do not give a truthful or comprehensive presentation of the facts. The institutions, professions and personalities involved in anti-nuclear campaigning are discussed. A division between branches of science according to knowledge and point of view is proposed, and the author argues that opposition to nuclear power comes largely from those whose profession provides them with no scientific knowledge of the nuclear industry.

398. ANON., 1981. THE ACTU URANIUM MINING DECISION, SOCIAL SURVEY, 30, 10, p291-92, 300.

In assessing reaction to the ACTU Executive's decision to lift bans on uranium exports, the author claims that the anti-nuclear movement in Australia and other western countries is politically motivated, seeking to support the interests of the Soviet Union and international communism by slowing down growth in the west's nuclear power industry and so in western economies. Evidence for this claim is found in the movement's failure to criticise growth of nuclear power in the communist countries and the Soviet Union's role in nuclear arms proliferation, or to criticise other energy industries which have a less favourable safety and environmental record.

399. ANON., 1987. MAUM: KNOW YOUR ENEMY, AUSTRALIAN JOURNAL OF MINING, 2, 9, MAY, p13.

Details the functions and activities of the Movement Against Uranium Mining and the organisation's position on nuclear issues, and registers concern at what are claimed to be attempts by MAUM to mount school 'brainwashing' programmes and to sabotage Australia's leading mining operations. Claims organisations like MAUM are contributing to a 'pre-terrorist culture' by taking direct action against legitimate business and government operations, describes three stages of 'pre-terrorist culture', and warns that anti-mining extremist organisations appear to be reaching the second or 'escalation' stage with various internal elements committed to the politics of terror.

400. ADAMSON, G., 1981. THE AUSTRALIAN MOVEMENT AGAINST URANIUM MINING, IN ADAMSON, G., WE ALL LIVE ON THREE MILE ISLAND: THE CASE AGAINST NUCLEAR POWER, PATHFINDER PRESS, SYDNEY, p113-134.

Reviews the history of the Australian uranium industry and the emergence of associated issues such as concern for the environment, fears about nuclear weapons proliferation and the effect of uranium mining on Aboriginal society in the Alligator Rivers Region. Discusses trade union and Aboriginal opposition to uranium mining, and reviews government policy on uranium during the 1970s and the responses of the anti-uranium lobby groups.

401. ALLEN, H., 1981. AGAINST WAKING THE RAINBOW SERPENT, ARENA, NO. 59, p25-42.

Views the findings of the Fox Inquiry and the Commonwealth decision to allow uranium mining as 'a disaster' from the conservation movement's point of view. Analyses the reasons for the movement's failure to achieve a more favourable outcome from its point of view, and identifies as key factors (1) the movement's inability to recognise that government-established legislation and tribunals would inevitably generate outcomes favourable to government and mining interests, and that it was consequently necessary for conservationists to grasp political power themselves; (2) its failure to treat its political allies (particularly Aborigines) as equals and its consequent inability to draw them into an effective coalition.

402. AUSTRALIAN URANIUM PRODUCERS FORUM (COMPILER), 1978. THE NUCLEAR DEBATE: A GLOSSARY OF QUOTATIONS, AUPF, MELBOURNE, 23p.

Contains quotations by individuals, companies and organisations interested or involved in the nuclear debate. Includes a selection of international articles and comments supportive of the nuclear industry, extracts from the Fox Report which are favourable to nuclear power, and claims that the Friends of the Earth's campaign reveals their opposition to economic growth and improved living standards.

403. BYRNE, J., 1975. URANIUM - THE ONLY ALTERNATIVE, AUSTRALIAN FINANCIAL REVIEW, 7 OCTOBER, p1-3.

In the first of four articles on uranium and nuclear power (see also Nos. 554 and 705) the author suggests that while the AAEC and mining companies have kept the uranium issue low key, public concern has been growing fanned by groups such as Friends of the Earth and the Australian Conservation Foundation (ACF). Reviews the anti-uranium and anti-nuclear campaigns of the ACF which are based on fears of arms proliferation and nuclear accidents, and claims that its calls for a complete ban on uranium mining have been met with general public apathy. Critically reviews the ACF's recently-released book (see No. 89) particularly its claims regarding feasible alternative energy resources, argues that coal and these other energy sources will be insufficient for predicted world energy demand, and briefly reviews an AAEC paper on the world energy situation.

404. ENGLISH, D. AND DOHERTY, J., 1979. URANIUM PART 1: FOR AND AGAINST, ADVERTISER, 23 APRIL, p4, 6.

Reviews the 'emotional issues' of the uranium debate, examines some inherent problems in the nuclear industry, and discusses the respective contributions of the anti-uranium groups and the newly-established Uranium Information Centre to the ongoing debate.

405. FALK, J., 1977. MOVEMENT AGAINST URANIUM, ARENA, NO. 46, p31-33.

Describes some of the activities (marches, public debate, signature drives) of the Movement Against Uranium Mining and predicts that the Movement will experience rapid growth to become a strong political force.

406. FARRER, P. ET AL, 1978. URANIUM: GO, RABELAIS, VOL. 12, p179-186.

Suggests that there are major internal disputes within the Movement Against Uranium Mining (MAUM) and alleges that, because of its hierarchical, sexist and non-representative nature, its effectiveness is limited. Most of the article comprises an interview with Joe Camilleri (President of MAUM) who outlines the purpose of the Movement as being to mobilise and unify people around the uranium issue.

407. FRENEY, D., 1982. RIOTINTO ZINC: FIGHTING THE WORLD'S BIGGEST URANIUM PRODUCER, TRIBUNE, 26 MAY, p8-9.

Reports the substance of an interview with research worker and anti-uranium activist Roger Moody on the work of PARTIZANS (People Against Rio Tinto Zinc and its Subsidiaries) and CIMRA (Colonial and Indigenous Minorities Research Action), and the ramifications of the RTZ empire and the uranium industry. Moody reviews his new book which he describes as an encyclopaedia of uranium mining companies and an 'anti-nuclear resource book'. Relates the anti-uranium movement in Australia to anti-nuclear movements in Europe.

408. FRIENDS OF THE EARTH (CANBERRA), 1986. STRATEGY AGAINST NUCLEAR POWER, SOCIAL ALTERNATIVES, 5,2, p9-16.

Examines various anti-uranium mining and anti-nuclear strategies proposed by Friends of the Earth. Presents a brief account of the role played by the state, capitalism, 'patriarchy', and the intellectual division

of labour in the development of nuclear power. Outlines the historical background to uranium mining in Australia and analyses the effectiveness of those strategies used to oppose uranium mining and to challenge the underlying structures of nuclear power. Argues that strategies of 'grassroots mobilisation' have proved more effective than pressuring elites to institute change from the top, and that it is necessary to build alternative structures as existing ones are challenged.

409. GROVER, J., 1980. THE STRUGGLE FOR POWER : WHAT WE HAVEN'T BEEN TOLD AND WHY!, E.J. DWYER, SURREY HILLS, NSW, CHAPTER 9.2, 'MOVEMENTS IN AUSTRALIA', p342-60.

Lists groups involved in the anti-uranium movement in Australia, and discusses the tactics they adopt; these include attempts to exploit the media, which is accused of being selective in reporting on uranium-related issues. Refutes the claims of the anti-uranium movement which, the author argues, are based on emotional appeal rather than fact. Discusses anti-uranium materials distributed in NSW schools, and claims that the Teachers' Union in that state provided pupils with only one side of the uranium debate.

410. MARTIN, B., 1980. NUCLEAR KNIGHTS, RUPERT PUBLIC INTEREST MOVEMENT, CANBERRA, 88p.

The author, a public opponent of nuclear power, sets out to analyse the views of two prolific advocates of nuclear power in Australia, Sir Ernest Titterton and Sir Philip Baxter. His aim is to uncover the assumptions and associated values on which their cases are built and to investigate links between their views and their professional and social position. Chapter 1 attempts to provide some background to the analysis by outlining the development of the nuclear debate in Australia, the case against nuclear power and uranium mining, and the background of some prominent public advocates of nuclear power. Chapters 2 and 3 present the views of Sir Ernest Titterton and Sir Philip Baxter respectively on various aspects of the nuclear debate, and comment critically both on certain aspects of their arguments and on their method of promoting those arguments. In Chapter 4 the author concludes that the views of Sir Ernest and Sir Philip can be understood by assuming they are built around basic themes or goals (promotion of nuclear power and of a nuclear-armed Australia, respectively) which influence their choices of arguments and claims at any given time, that underlying these arguments and claims are assumptions which reflect social, political and economic values,

and that these values in turn have clear links with the professional and social position of the two men.

411. MARTIN, B., 1982. THE AUSTRALIAN ANTI-URANIUM MOVEMENT, ALTERNATIVES (ONTARIO), 10, 4, SUMMER, p26-35.

Provides a brief historical overview of the uranium and nuclear debates in Australia and of the evolution of federal government policies on uranium and nuclear power. Outlines the origins and development of the anti-nuclear movement in Australia, summarises the case against uranium mining, and discusses the institutions and interests which support uranium mining. Discusses the activities involved in the national anti-nuclear campaign, its strategies, organisation, and the practical problems it encountered. Notes the importance of its ability to link opposition to uranium with support for Aboriginal land rights. Seeks to explain why a major anti-nuclear and anti-uranium campaign developed in Australia in the mid 1970s given the absence of nuclear power plants and major uranium mines. Evaluates the success of the anti-nuclear movement to date and its future prospects. The article also contains a study of the dynamics of a local anti-nuclear campaign (in Canberra).

412. MARTIN, B., 1982. THE NAKED EXPERTS, ECOLOGIST (LONDON), 12, 4, p149-157.

Discusses why, in the Western World, there is public distrust of scientific experts, and considers the record of Leslie Kemeny, 'Australia's most vociferous pro-nuclear expert'. Comments on the range of Kemeny's arguments and examines how he treats each of the major issues raised by the anti-nuclear movement in Australia. Argues that the public have good reason to distrust Kemeny as expert since, in the author's view, Kemeny addresses only some of the issues, seldom replies to anti-nuclear arguments, presents material which is irrelevant and often subject to inaccuracies, fails to acknowledge his mistakes, speaks from a position representing a potential conflict of interest, and has experience which is mostly irrelevant to the issues or of doubtful quality.

413. MARTIN, B., 1984. ENVIRONMENTALISM AND ELECTORALISM, ECOLOGIST (LONDON), 14, 3, p110-18.

Summarises and updates material from an earlier article on the strategy of the Australian anti-nuclear movement (see No. 411).

414. MULLER, F., 1982. ANTI NUCLEAR 1982, CHAIN REACTION, NO. 27, AUTUMN, p11-15.

Reviews progress to date of the anti-nuclear campaign in Australia and considers future action. The author believes that although commencement of uranium mining in the Northern Territory has been a campaign set-back, some gains have been made including changes in public, trade union and Labor Party opinion on uranium. Discounts pragmatic pro-uranium arguments and reviews the significance of anti-uranium movements in hindering uranium development. Notes sharp downturn in uranium market which has also been a major factor in slowing uranium development, but explains why market forces are not a reason for complacency. Previews possible Liberal/NCP government uranium initiatives as well as developments in ALP uranium policy, predicts increased public awareness and concern about the threat of nuclear war, and makes suggestions for public action.

415. MULLINS, P., 1979. RALLY AGAINST URANIUM, ASIAN BUREAU AUSTRALIA NEWSLETTER, NO. 45, pl.

Reports interview with Joe Camilleri about the Movement Against Uranium Mining. Camilleri traces the origin and development of the anti-uranium movement, and claims that nearly half the population is opposed to uranium mining and export. Discusses the impact of the Fox Reports on the Movement, and the government decision to approve uranium mining and export. Argues that the anti-uranium movement in Australia is also concerned with international nuclear issues, and relates the anti-nuclear movement worldwide with fundamental changes of attitude to lifestyle and the structure of modern society.

416. PERRETT, J., 1986. HELEN CALDICOTT TIRED OF FIGHTING A LONE WAR, AUSTRALIAN, 27 MAY, p14.

417. SEDDON, T., 1984. A LITTLE EACH DAY THE URANIUM INFORMATION CENTRE'S BATTLE FOR YOUR MIND, CHAIN REACTION, NO. 38, JULY/SEPTEMBER, p20-23.

Critically reviews material written and distributed by the Uranium Information Centre (UIC) about aspects of the uranium industry. Argues that, in common with governments, corporations and professional organisations, uranium mining companies, through the UIC, are employing a strategy of 'expertism', thereby controlling access to information and areas of knowledge and limiting the boundaries of public debate. Describes ways in which the UIC highlights certain

aspects of the uranium issue and either underplays, smudges or ignores others.

418. WHITE, D., 1977. REACTION TO YELLOW CAKE, ARENA, NO. 47-48, p6-9.

Discusses wider issues involved in the tactical relationship between 'popular movements' such as that against uranium mining and working class actions attempting to challenge the state and big business, a relationship illustrated by recent (1977) anti-uranium demonstrations which gained support from Melbourne dockside workers involved in loading yellowcake.

Cross References

28, 35, 78, 86, 87, 106, 108, 110, 115, 128, 137, 170, 193, 194, 205, 234, 256, 279, 341, 422, 424, 431, 443, 484, 633, 639, 778, 802

Public Opinion

419. ANON., 1977. LESS THAN HALF NOW FAVOUR THE MINING OF URANIUM, BULLETIN, 13 AUGUST, p27.

Presents the results of an Australia-wide Morgan Gallup Poll (July 1977) designed to test public opinion on mining and export of uranium. The results are compared with a similar survey conducted prior to the 1977 ALP National Conference in the previous month; the findings indicate a drop in support for uranium development from 50 to 47 per cent of those polled.

420. ARMSTRONG, D., 1984. POLL ENDORSES HAWKE'S STAND ON URANIUM, BULLETIN, 10 JANUARY, p16-17.

Reports the findings of a November 1983 Morgan Gallup Poll which sought to gauge public opinion on development and export of Australian uranium. Of the 2,236 people polled, 66 per cent supported development and export, though 62 per cent (58 per cent of those who supported mining) expressed concern about nuclear waste and the use of Australian uranium in nuclear weapons. Support was stronger among men than women, and varied directly with age, with less support among the young.

Cross References

91, 180, 279, 338, 414, 421, 599

Role of the Media

421. ANON., 1978. THE URANIUM ISSUE, NEW JOURNALIST, NO. 30, APRIL, pl-3.

Critically reviews media coverage of the uranium and nuclear debates and argues that press support for mining and export of Australian uranium reflects the political affinities of newspaper owners and their relationship with big business. Argues that a large proportion of public opinion is opposed to uranium mining and nuclear power.

422. GALLOWAY, B., 1978. URANIUM AND THE MEDIA, SOCIAL ALTERNATIVES, VOL. 1, NOVEMBER, p32-35.

Reviews the Australian Uranium Producers Forum's utilisation of the media in its pro-uranium mining campaign. Cites various papers on the influence of the media on public opinion, notes criticisms regarding use of misleading, incorrect or contradictory information levelled at the AUPF, and discusses the overall issue of freedom of the press in selection of material for distribution. The author claims that the press is effectively controlled by capitalist and government interests and suggests that it and the other forms of the media exist primarily as an advertising medium.

423. HOUGHTON, E., 1978. U-PHORIA, NEW JOURNALIST, VOL. 30, APRIL, p7-9.

Provides a detailed outline of the print media's coverage of the Fraser government's uranium decision, and refers more briefly to television coverage. Alleges collusion between the government and the controllers of the media in limiting public access to information on uranium, and cites numerous newspaper articles that appeared to set the stage for an announcement approving the mining of uranium. Reports that, with very few exceptions, the media gave the government's decision unqualified approval and claims that it emphasised the economic benefits of uranium while ignoring the controversy surrounding the issue.

424. O'HARA, J., 1977. TELEVISION AND URANIUM, CINEMA PAPERS, VOL. 169, OCTOBER, pl41, 185.

Critically reviews television coverage of the uranium issue and claims it has been used to mount an expensive

and sustained advertising programme, disguised as a series of 'public service announcements', in favour of uranium mining. Argues that the advertising campaign is based on 'a series of half-truths', statements which may be true in themselves but tell only part of the story and so falsify the overall picture, and that this has also been the style of commentary on the uranium issue by the miners, the [federal] government and the media. Claims that the public has been prepared by the media to see the uranium issue in a particular light, that the constraints of the news gathering process has favoured pro-uranium industrial and political interests, and that the media has done little to present the other side of the argument. Argues that the media has been more interested in the 'fact' of protest than in the specific 'point' of protest, thereby portraying anti-uranium activity as disruptive and potentially threatening to the Australian democratic way of life.

425. WALKER, J.R., 1986. DO NUCLEAR SCIENTISTS AND THE MEDIA UNDERSTAND ONE ANOTHER, RADIATION PROTECTION IN AUSTRALIA, 4, 4, p140-143.

Criticises the media's use of 'so-called experts' to discuss nuclear issues, cites examples from the press of the negative attitude of journalists and readers to science, and to radiation in particular, and the tendency of some members of the media to 'beat-up' nuclear incidents. Suggests ways in which the scientific community could communicate more effectively with the media and the public.

Cross References

114, 135, 339, 409, 476, 706

Uranium and Civil Liberties

426. FLOOD, M., GROVE-WHITE, R. AND SUTER, K., 1977. NUCLEAR PROSPECTS. A COMMENT ON THE INDIVIDUAL, THE STATE AND NUCLEAR POWER, FRIENDS OF THE EARTH, COUNCIL FOR THE PROTECTION OF RURAL ENGLAND AND NATIONAL COUNCIL FOR CIVIL LIBERTIES, LONDON, 99p.

Contains the reprinted text of a British pamphlet which questions the optimistic predictions made for nuclear energy, and expresses concern about maintenance of law and order and the growing threat to civil liberties arising from a general misuse of power on the part of government servants. Argues that these concerns are relevant to Australia as a seller of uranium, examines ways Australians may be affected by nuclear power in other foreign countries, and considers the existing legislative framework and the potential threats to Australian civil liberties if it is decided to export Australian uranium.

427. O'CONNOR, K., 1978. URANIUM AND CIVIL LIBERTIES, DISSENT, VOL. 37, AUTUMN, p4-7.

Discusses the implications for civil liberties arising from possible future developments in the Australian uranium industry, and concludes that because of sweeping police powers and stifled access to information not only will there be unnecessary arrests but the accused will have little chance of acquittal. Reviews a Friends of the Earth submission to the Ranger Inquiry in April 1976 concerning legal controls governing uranium mining and milling. Discusses relevant provisions of the Atomic Energy Act 1953, particularly what is meant by 'restricted information' and 'an intent to prejudice defence', and expresses disquiet that the Act will require persons to prove their innocence rather than the courts to prove a case against them. Argues that the Act is not appropriate for peacetime uranium mining, and poses a very real and serious threat to civil liberties. Claims that uranium mining poses a threat to the human rights of Aborigines, and calls for appropriate legislation to protect them. Cites the Fox Report's concern on the issue and events in America and England as evidence that nuclear development also infringes civil liberties.

428. REFSHAUGE, R., 1977. CIVIL LIBERTIES IN THE NUCLEAR SOCIETY, LEGAL SERVICE BULLETIN, AUGUST, p269-271.

Discusses the implications of the introduction of safeguards and security measures to prevent sabotage or theft of nuclear materials for the civil liberties of Western society. Speculates about the methods which might be employed to preserve security in a nuclear-power-dominated society. Expresses concern about the lack of discussion on this issue in Australia.

Cross References

108, 186, 312

PART FOUR

URANIUM AND ABORIGINES

General

429. ANON., 1976. LAND RIGHTS NEWS, URANIUM DEADLINE, 2, 3, p26-27.
430. ANON., 1976. URANIUM AND ABORIGINES, URANIUM DEADLINE, 1, 1 AND 2, p1-3.

Speculates about the impact of a mining township on Aborigines of the Alligator Rivers Region. Includes statements from the Ranger Uranium Mines Environmental Impact Statement, from Alfred Wilson, an Oenpelli missionary, and from Silas Maralngurra, President of the Oenpelli Council.

431. ANON., 1978. LAND COUNCILS AND URANIUM MINING, CENTRAL AUSTRALIAN LAND RIGHTS NEWS, NO. 10, p19.

Defends the decision of the NLC to allow uranium mining in the Alligator Rivers Region of the Northern Territory, on the grounds that the Commonwealth government would otherwise have imposed a far worse agreement and that members of the NLC cannot impose their will on other Aborigines who must be free to make their own decision regarding land rights and mining. Berates anti-uranium movements for their criticism of Aboriginal leaders and their lack of support for decisions taken by Aboriginal people, and claims that such criticism only alienates Aborigines and creates divisions which mining companies can exploit.

432. ANON., 1978. RANGER AGREEMENT: NABARLEK AGREEMENT: MAIN FEATURES, TIME AND ENERGY, VOL. 5, p18-23.

Lists the main features of both agreements and explains how mining profits would be divided up. Discusses NLC rejection of Pancontinental's proposals for the Jabiluka Project, and Nabarlek traditional owners' reaction to Queensland Mines Limited's proposal for an access road and barge loading facility. Comments on the growing political awareness of Aboriginal people and notes a conflict between government and mining companies about responsibility for payment of mining royalties to Aborigines.

433. ANON., 1978. REBIRTH OF THE NORTH - ABORIGINES AND URANIUM, FAR EAST ECONOMIC REVIEW, VOL. 100, JUNE, p39-41.

Reviews the prospects for the NT economy on the eve of self-government. Emphasises its dependence on federal funding, and the importance of uranium mining and tourism to its future prospects. Notes the growing political and economic significance of the NT's Aboriginal population, evident from their 'central role' in negotiations with federal and Territory politicians and with mining companies over uranium and tourist developments.

434. ANON., 1979. ACADEMIC VULTURES, CARE NEWSLETTER, NO. 8, p9.

Deplores prospective monitoring of social effects of uranium mining on the Oenpelli community by three separate groups of academics, and questions whether their studies will bring any benefits to Aboriginal people.

435. ANON., 1979. AUSTRALIAN URANIUM CONNECTION, PACIFIC RESEARCH, 10,1, p34-37.

Discusses the issue of land rights versus mineral rights and mining company proposals for development of uranium in the NT, and assesses the effects of uranium mining upon the surrounding environment and on the lives of the 'Uranium Province' Aborigines. Argues that a fundamental conflict of interests exists between mining companies wishing to exploit the large, rich Jabiluka uranium deposit and the traditional Aboriginal landowners who have pledged continuing resistance to their plans.

436. ANON., 1983. ABORIGINES DEMAND MINES - NOT PARKS, AUSTRALIAN, 23 NOVEMBER, p1-2.

437. ABORIGINAL LAND RIGHTS SUPPORT COMMITTEE, 1977. THE SECOND RANGER REPORT: IMPLICATIONS FOR THE ABORIGINAL PEOPLE, SUMMONS, p49-56.

Reviews the Second Fox Report's findings on Aborigines, land rights and uranium mining. Discusses why the Commissioners, whilst endorsing Aboriginal ownership of the lands proposed for mining, decided that Aboriginal opposition should not stop mining. Expresses Aboriginal opposition to uranium mining in the region, outlines the dangers faced by Aborigines if mining goes ahead, and argues that the Commission's proposals for Aboriginal development, welfare and self determination, seen as a protection from and compensation for mining,

should be implemented irrespective of whether mining proceeds.

438. AUSTRALIAN INSTITUTE OF ABORIGINAL STUDIES, SOCIAL IMPACT OF URANIUM MINING ON THE ABORIGINES OF THE NORTHERN TERRITORY. REPORT TO THE MINISTER FOR ABORIGINAL AFFAIRS, AUSTRALIAN INSTITUTE OF ABORIGINAL STUDIES, CANBERRA, SIX MONTHLY, SEPTEMBER 1979-MARCH 1983.

Report on the organisational structure and research activities of the AIAS's Project to Monitor the Social Impact of Uranium on Aborigines in the Northern Territory, and on the concerns of the Project's Steering Committee and of Project staff regarding specific impacts of uranium mining. Each report provides details on the Steering Committee's activities and on research conducted or planned during the relevant period, and contains the Project Director's Report to the Steering Committee for that period. Specific impacts and issues are discussed in the reports, and recommendations made as to how they should be dealt with or regarding the research required to assist in developing an appropriate response. The issues involved include education, alcohol and related social problems, health, the Oenpelli road dispute, employment, mining royalties and consultations and negotiations involving Aboriginal people.

439. AUSTRALIAN INSTITUTE OF ABORIGINAL STUDIES, 1984. ABORIGINES AND URANIUM: CONSOLIDATED REPORT ON THE SOCIAL IMPACT OF URANIUM MINING ON THE ABORIGINES OF THE NORTHERN TERRITORY, AGPS, CANBERRA, 318p.

In Chapter I Colin Tatz, Chairman of the Steering Committee of the AIAS's Project to Monitor the Social Impact of Uranium Mining on the Aborigines of the Northern Territory, describes the establishment and operation of the Project and some of the difficulties it faced. In Chapter II the Project Director, John von Sturmer, summarises the findings of the Second Fox Report which related to Aborigines, and offers a detailed critique of the Fox Commission's assumptions, conclusions and recommendations on the Aboriginal social environment and on anticipated social and economic impacts. Chapters III, IV and V authored by Tatz, von Sturmer and the Project's Research Fellow, Sue Kesteven, present and interpret research activities and findings, dealing with law and legislation, economic consequences of uranium mining, health, alcohol and related social problems, contact with non-Aboriginal people, Aboriginal civic culture, and social change in Oenpelli (co-authored by Kesteven and R.H. and

C.H. Berndt). The final two chapters provide an interpretation and summary based on these findings, and a summary of recommendations arising from the Project.

440. BENNETT, D., 1977. ABORIGINAL LAND RIGHTS AND URANIUM MINING, [BACKGROUND PAPER] THE CONSEQUENCES OF AUSTRALIAN URANIUM, LEGISLATIVE RESEARCH SERVICE, PARLIAMENT OF AUSTRALIA, CANBERRA, 8p.

Outlines the provisions of the Aboriginal Land Rights (Northern Territory) Act 1976 which relate to uranium mining in the Ranger Project Area, and to those sections of the Atomic Energy Act 1953 which have some relevance to Aboriginal land. Includes an outline of the NLC's submission to the Ranger Inquiry, a review of Aboriginal attitudes to mining, and a list of safeguards and compensatory measures requested by Aborigines were mining to proceed.

441. BROOKS, G., 1986. SELLING URANIUM TO THE DESERT PEOPLE, NATIONAL TIMES, 25 APRIL-1 MAY, p16-17.

Describes a visit by Central Australian Aborigines, the Warlpiri people, to the Ranger mine and its township, Jabiru. Two companies had applied for licences to explore for uranium on their land, and the Warlpiri were anxious to see a mine and talk to local Aborigines about the impact of mining. Outlines the ambivalent attitude of the Warlpiri to mining; they are anxious to obtain additional income to raise their living standards and maintain traditional activities, but fear the impact of mining on their land. Stresses the difficulty most Aborigines face in comprehending much of the information provided to them on the nuclear fuel cycle and the environmental impact of uranium mining.

442. BUTT, L. AND COOK, I., 1983. NUCLEAR LAND BATTLES: LAND RIGHTS, URANIUM AND THE NORTHERN TERRITORY, SEMPER, 6 APRIL, p9.

443. CAMILLERI, J., 1978. SCREWING OUR BLACKS FOR URANIUM, NATION REVIEW, 28 JULY-3 AUGUST, p5.

Claims that announcements on a safeguards agreement with Finland and a resources rent tax on uranium production indicate that in order to sell Australian uranium the Fraser government will have to accept terms set by a buyers' market. Argues that the NLC has been created by and serves white interests and consequently questions whether it can effectively look after Aboriginal interests. Discusses Aboriginal requests to mine uranium deposits sequentially and the issue of

mining royalties. Reports that Aborigines have agreed to support anti-uranium activities organised by the Movement Against Uranium Mining.

444. CAMPAIGN AGAINST MINING ON ABORIGINAL LAND, 1979. URANIUM MINING. NEGOTIATION OF LAND RIGHTS, CAMAL, MELBOURNE, 2p.

Discusses the Fraser government's negotiations with Aboriginal communities in the Alligator Rivers Region. Claims these are no more than a public relations exercise and that both stated Aboriginal opposition to uranium mining and the Fox Report recommendations on sequential mining (aimed at limiting the number and therefore the effect of white people in the area) are being ignored, and that unreasonable pressure was brought to bear on traditional landowners to make a quick decision. Expresses concern that Aborigines do not have an effective right of veto over mining on their lands. Outlines what are claimed to be unfavourable implications for Aborigines in areas such as royalties, land rights and civil liberties arising from the fact that mining will occur under the Atomic Energy Act 1953. Reviews how mining proposals at Yeelirrie would affect Aborigines, and quotes the Fox Report to illustrate Aboriginal opposition to mining.

445. CARROLL, P.J., 1978. URANIUM MINING: AN OENPELLI VIEW-POINT, OCCASIONAL BULLETIN, NUNGALINYA COLLEGE, DARWIN, 8p.

Presents an historical review of uranium exploration and mining in the Alligator Rivers Region. Explains the basis of traditional Aboriginal land ownership, and how the creation of reserves and increasing concentrations of Aborigines at the missions led to the impression that Aborigines were not interested in their land. Reviews the Oenpelli people's opposition to developments at the Nabarlek uranium deposit, an appreciation of which, it is claimed, aids understanding of Aboriginal attitudes to mining. Argues that mining of uranium in the Alligator Rivers Region has the potential to destroy Aboriginal society and explains how the Aboriginal outstation movement (possibly funded by mining) could ensure Aborigines a continuous existence.

446. CARROLL, P., 1983. URANIUM AND ABORIGINAL LAND INTERESTS IN THE ALLIGATOR RIVERS REGION, IN PETERSON, N. AND LANGTON, M. (EDS) ABORIGINES, LAND AND LAND RIGHTS, AIAS, CANBERRA, p339-357.

Recounts the history of early European exploration and settlement in the Alligator Rivers Region, and outlines

plans for a national park in the area. Reviews the uranium discoveries, their early development, and events leading up to the establishment of the Ranger Inquiry. Discusses the structure and effectiveness of the NLC. The appendix includes a summary of the Ranger Agreement and of the agreement between the NLC and Australian National Parks and Wildlife Service concerning the leasing of Kakadu from its Aboriginal owners.

447. CHALOUPKA, G., 1976. ENVIRONMENTAL ENQUIRY - RANGER URANIUM PROJECT, SITE RECORDERS' NEWSLETTER, 1, 2, p12-14.

Explains why and how the author has produced a map which shows the traditional territory of the Mirarr Aboriginal clan (the clan affected by the Ranger uranium mine) and a list naming the relevant traditional owners, and argues in favour of adopting this method to establish future land ownership. Author intends to extend the survey to cover all clan territories and their membership within Western and Central Arnhem Land.

448. CHAPMAN, C., 1981. OPENING THE GATE FOR ARNHEM LAND RUSH, AUSTRALIAN BUSINESS, 1, 216, MARCH, p13-15.

449. CHEESEWRIGHT, P., 1977. URANIUM AND CONCERN FOR THE ABORIGINES, FINANCIAL TIMES (LONDON), 1 JULY, p30.

450. CLADITZ, N., 1978. INTERVIEW WITH GALARRWUY YUNUPINGU, CHAIN REACTION, 4,1, p16-17.

Presents the text of an interview with Galarrwuy Yunupingu in which he comments on the attitudes of NT Aborigines to mining in general, uranium mining in particular, and mining companies and governments involved in uranium development. Article claims that Aboriginal opposition to mining is still strong.

451. CLARK, A., 1979. URANIUM AIRLIFT PLAN TO BEAT ABORIGINAL BLOCKADE, BULLETIN, 30 OCTOBER, p24-25.

A legal challenge under the provisions of the Aboriginal Land Rights (Northern Territory) Act 1976 by eight traditional Aboriginal owners against Queensland Mines Limited's use of the Cahills Crossing/Oenpelli road is leading the company to consider flying yellowcake out of the region. The aircraft being considered is the Argosy, only three of which exist in Australia. Although the owners of the aircraft have not yet been approached by Queensland Mines they may be reluctant to make the

aircraft available because of fears of union retribution.

452. CLARK A., 1980. URANIUM AND THE ABORIGINES: PART I: THE SNAKES WILL SWALLOW THE COUNTRY, AUSTRALIAN PLAYBOY, MARCH, p97-102.

Takes its title from a comment by a traditional owner of the Ranger site, 'the snakes will swallow the country', being the anticipated result of the disruption caused by mining. The article outlines the initial Aboriginal rejection of uranium mining and how this rejection was regarded by developers and the government as a basis for negotiation. Briefly describes the contact history and geography of the Arnhem Land region and the physical infrastructure of the four mining sites in the uranium province, and outlines some of the viewpoints of the European mine/camp managers.

453. CLARK, A., 1980. URANIUM AND THE ABORIGINES: PART 2, THE SAME HORROR OF DEATH, AUSTRALIAN PLAYBOY, APRIL, p122-126.

Outlines the disruption to Aboriginal culture and lifestyle brought about by the infiltration of European miners into previously isolated Arnhemland. Describes the author's visit to Oenpelli and his impressions of the community, and emphasises that liquor consumption is a major problem. The author questions to what extent this problem has been exacerbated by the onset of mining, and ponders whether the outstation movement will offer any solution.

454. CLARKE, B., 1976. THE CHURCH SPEAKS OUT AT THE RANGER URANIUM ENVIRONMENTAL ENQUIRY, MISSIONARY REVIEW, NO. 1, p3-4.

Contains highlights of Reverend Clarke's submission to the Ranger Inquiry on the effects of mining on Aboriginal communities. Argues that mining causes disruption of their social fabric, and that royalties represent the only benefit associated with it. Discusses the effects of mining on the Aboriginal community of Yirrkala, and observes that the intent of mining agreements has been most successfully achieved where legislation lays down provisions for its implementation, as opposed to those cases where no specific action is required.

455. CLARKE, R., 1979. LEAVE IT IN THE GROUND, BLACKS SEEK URANIUM BLOCKADE, DIRECT ACTION, NO. 276, p7.

456. COOMBS, H.C., 1980. IMPACT OF URANIUM MINING ON THE SOCIAL ENVIRONMENT OF THE ABORIGINES IN THE ALLIGATOR RIVERS REGION, IN HARRIS, S., (ED), SOCIAL AND ENVIRONMENTAL CHOICE: THE IMPACT OF URANIUM MINING IN THE NORTHERN TERRITORY, CRÉS MONOGRAPH 3, CENTRE FOR RESOURCE AND ENVIRONMENTAL STUDIES, ANU, CANBERRA, pl22-135.

Discusses the five components of the 'Woodward-Fox Scenario' which should in theory protect Aborigines in the Alligator Rivers Region from the impact of uranium mining (a Northern Land Council; a National Park of Aboriginal Land; a limited mining township; respect for Aboriginal wishes regarding their land; and sequential mining). Expresses concern that to date mining developments appear to be incompatible with that scenario as evidenced, for example, by the Fraser government's rejection of sequential mining. Critically reviews the NLC, claims it is not fulfilling its intended role, criticises its part in the Ranger and Nabarlek Agreements, and argues that federal parsimony has made the NLC dependent on mining royalties and therefore concerned to reach agreement whatever the views of the community it represents. Expresses concern about the effectiveness of Kakadu National Park as a 'buffer' between Aborigines and mining activities and those brought in to conduct them. Claims that little or nothing of what is happening in relation to mining, the Park or the township gives real recognition to the fact of Aboriginal ownership. Relates the fears which mining has generated among Aborigines, for example regarding their health, environmental pollution and damage to sacred sites. Suggests numerous changes which the author believes might bring about some improvements in Aboriginal affairs in the Alligator Rivers Region.

- 456A COUSINS, D. AND NIEUWENHUYSEN, J., 1984. ABORIGINES AND THE MINING INDUSTRY, GEORGE ALLEN AND UNWIN, SYDNEY, CHAPTER 6, URANIUM MINING IN THE ALLIGATOR RIVERS REGION, p89-119.

Briefly reviews the history of the Alligator Rives Region and the background to uranium mining there. Provides basic demographic data on the Aboriginal population in the Region, then presents an analysis of Aboriginal involvement in the Ranger and Nabarlek projects. The sections on Ranger outline the company's statutory obligations on Aboriginal employment and training, provide details of current employment and training programmes and discuss accommodation for Aboriginal workers, company liaison with Aborigines,

royalty payments to Aboriginal groups and Aboriginal attitudes to the Ranger project. The sections on Nabarlek cover the same general areas but provide more detailed figures on aboriginal employment patterns and an additional section deals with local business development. Briefly discusses the terms of the Jabiluka Agreement signed with Aboriginal landowners in June 1982.

457. DEPARTMENT OF ABORIGINAL AFFAIRS, 1979. AUSTRALIAN ABORIGINES AND URANIUM, BACKGROUND NOTES NO. 2 (REVISED EDITION), CANBERRA, 6p.

Provides background information on aspects of uranium mining in the Alligator Rivers Region and its implications for Aborigines in the area. Lists the uranium deposits and the mining companies involved. Briefly reviews the Aboriginal Land Rights (Northern Territory) Act 1976, and discusses the role of the Aboriginal Land Commissioner and the clauses dealing with Aboriginal veto of mining projects on their land and with 'national interests' provisions. Briefly mentions the Ranger and Nabarlek uranium agreements and the lease agreement for Kakadu National Park. Notes the role of the Supervising Scientist and Minister for Aboriginal Affairs in monitoring uranium's impact on the environment and its social impact on Aborigines, respectively.

458. ELLIOTT, M., 1978. HEROES: RANGER: BLACKS BEAT FRASER, NATION REVIEW, 29 SEPTEMBER-5 OCTOBER, p1.

Reports that the NLC has, as a result of an NT Supreme Court ruling, won the right to hold full consultations with traditional owners about proposals to mine uranium in the Alligator Rivers Region. Criticises environmental protection clauses in the Ranger Agreement and speculates about the government's next course of action.

459. ELLIOTT, M., 1979. LAND RIGHTS AND URANIUM DEFENCE TRUST FUND, ENVIRONMENT COUNCIL OF NT NEWSLETTER, FEBRUARY, p5.

460. FEDERATED COUNCIL FOR THE ADVANCEMENT OF ABORIGINES AND TORRES STRAIT ISLANDERS, 1977. REACTION TO THE FOX REPORT, IDENTITY, OCTOBER, p16,37.

Outlines the Federated Council for the Advancement of Aborigines and Torres Strait Islanders (FCAATSI) dissatisfaction with the Second Fox Report's conclusion that Aboriginal opposition to uranium mining should not be allowed to prevail. Claims that neither the Second

Fox Report nor the Aboriginal Land Rights (Northern Territory) Act 1976 deal adequately with Aboriginal interests. Expresses concern that although most traditional landowners were opposed to mining they felt opposition was futile in the face of the Fraser government and the mining lobby, and claims that they were not fully informed and were rushed into making decisions without consensus of opinion. Recommends a series of initiatives which should be taken before mining proceeds in order to protect Aboriginal interests, and voices support for a uranium moratorium and appointment of Aboriginal representatives from the two NT Land Councils to any uranium advisory council which may be formed.

461. FORRESTER, V., 1984. URANIUM AND ABORIGINES [SPEECH TO THE AUSTRALIAN LABOR PARTY, NORTHERN TERRITORY BRANCH], RABELAIS, 18,10, pl6-17.

A plea to readers to think what Australia's involvement in the uranium industry is doing to Aboriginal Australians and a demand that Aboriginal rights be recognised and their well-being considered. Forrester sees his people as receiving no proper information about the effects of uranium mining on the land, information without which they cannot make correct decisions. Of particular concern is the danger of contamination of water supplies (both surface and artesian) by radioactive mine tailings. Also unsettling is the dependency of the Aboriginal community on the government or on statutory bodies which are themselves dependent on royalties from uranium mining. Forrester calls for all Aboriginal service needs to be met by direct grants from the Federal Treasury so that this dependence on mining activity for money to fund essential services can be broken.

462. GRAY, W.J., 1980. THE RANGER AND NABARLEK MINING AGREEMENTS, IN HARRIS, S. (ED), SOCIAL AND ENVIRONMENTAL CHOICE: THE IMPACT OF URANIUM MINING IN THE NORTHERN TERRITORY, CRES MONOGRAPH 3, CENTRE FOR RESOURCE AND ENVIRONMENTAL STUDIES, ANU, CANBERRA, pl36-153.

Presents information on the agreements entered into between the Commonwealth and the Northern Land Council (NLC) in relation to the Ranger deposits, and between the Commonwealth, the NLC and Queensland Mines Ltd in relation to the Nabarlek deposit. Summarises provisions of the Ranger and Nabarlek Agreements dealing with environmental issues, Aboriginal liaison, employment and training, local business development,

control of liquor, restricted areas and permits, rights of traditional owners, sacred sites, instruction in Aboriginal culture, payments to Aborigines and (for the Naborlek agreement) safety and health, the social club and roads and buildings. Considers the issues of alcohol and distribution of royalties in more detail, and highlights Commonwealth initiatives aimed at ensuring that the social impact on Aborigines living in the Alligator Rivers Region is monitored and that activities of the various government and non-government agencies operating within the Region are coordinated. Discusses the establishment, composition and terms of reference of the Standing Committee on the Social Impact of Uranium Mining. Refutes Dr Coombs' claims that Aboriginal wishes regarding their land are being overruled (see No. 456).

463. GROVER, J., 1980. THE STRUGGLE FOR POWER: WHAT WE HAVEN'T BEEN TOLD AND WHY, E.J. DWYER, SURREY HILLS, NSW, CHAPTER 10.3, THE RANGER AGREEMENT, p409-15.

Argues that anti-uranium interests attempted to pressure Aborigines into rejecting the Ranger Agreement, that local Aborigines were not unduly concerned regarding the physical impact of uranium mining at Ranger, and that they stand to gain very substantial financial benefits from exploitation of uranium on their land.

464. HARRIS, S., 1977. ABORIGINES: SENSING REAL POWER AT LAST, BULLETIN, 10 DECEMBER, p22, 25.

465. HARRIS, S., 1980. URANIUM MINING DEVELOPMENT IN THE NORTHERN TERRITORY: AN OVERVIEW OF THE ISSUES, IN HARRIS, S. (ED), SOCIAL AND ENVIRONMENTAL CHOICE: THE IMPACT OF URANIUM MINING IN THE NORTHERN TERRITORY, CRES MONOGRAPH 3, CENTRE FOR RESOURCE AND ENVIRONMENTAL STUDIES, ANU, CANBERRA, p1-11.

Presents an overall review of this publication, and outlines the principal issues, conclusions and lessons that have emerged from both individual contributions and the workshop where earlier drafts were discussed. States that the issues raised by the decision to mine uranium and the development of mines and infrastructure in the Alligator Rivers Region are very complex, and warns against considering the factors and issues in isolation because of the inevitable ties between them all. Identifies the major problem as one of 'seeking an effective compromise between the various objectives - the mining interest, the minimum feasible disturbance of Aboriginal society and culture, the establishment of a socially integrated community in the local township,

the needs of the National Park, the reconciliation of white and Aboriginal Australian relationships, and the protection of the natural environment'. Makes some recommendations regarding availability of information and advisory services to Aborigines, flexible development of agreements between Aborigines and other interests, and the need for more 'social scientific research effort'. Argues that the custom of presenting information, views and opinions in a western-style democracy so as to sway public opinion rather than to accurately reflect the truth assumes a level of public sophistication in balancing information and forming opinions and equal access to means of disseminating information, and that these assumptions are not necessarily valid as regards Aborigines.

466. HICKIE, D., 1981. ABORIGINES OUTRAGED BY KAKADU LAND GRAB, NATIONAL TIMES, 10-16 MAY, p17.

467. HOARE, J., 1980. ALLIGATOR RIVER MINERS ARE ON THEIR MARKS, FINANCIAL REVIEW, 2 SEPTEMBER, p48.

Reviews the state of play between mining companies, the NT government, the Commonwealth and the NLC, all awaiting the outcome of land claims in the Alligator Rivers Region of the NT. Lists the interested mining companies, reviews the processing of exploration licences, and discusses the implications of the Region's designation as a National Park and of competition between the federal and Territory governments to control uranium mining. Predicts that Aboriginal presence and environmental sensitivity will lead to political trouble.

468. HOCKNELL, K., 1986. ABORIGINES OF THE ALLIGATOR RIVERS REGION, IN ROACHE, M. AND CURTHAYS, A. (COMPILERS), NOT THE BICENTENNIAL, FACULTY OF HUMANITIES AND SOCIAL SCIENCES, NEW SOUTH WALES INSTITUTE OF TECHNOLOGY, SYDNEY, p143-159.

Presents a critique of uranium exploitation in the Alligator Rivers Region of the NT and an account of Aboriginal attitudes towards mining, mining companies and the federal and NT governments. Describes the signing of the Ranger Agreement from an Aboriginal point of view, and discusses mining royalties, land rights and the Aboriginal right to veto mining. Cites evidence in support of claims that uranium mining has had a significant and adverse social impact on Aborigines, and identifies 'greed' and dependency on aspects of white material culture as the major unforeseen effects. Reviews the impact of the Ranger

uranium mine on the surrounding environment and cites a number of 'accidents' which have occurred. Discusses how royalties and land rights could create greatly increased opportunities for Aboriginal self-determination.

469. HOGARTH, M., 1987. CRA MINE PLAN A 'NIGHTMARE', NATIONAL TIMES ON SUNDAY, 19 APRIL, p3.

470. HUTTON, B., 1977. OENPELLI ABORIGINES - HOW MINING WILL AFFECT THEM, ENVIRONMENT NEWS, 2, 2, p8-10.

Critically reviews past negotiations between Queensland Mines Ltd and Oenpelli Aborigines over the Nabarlek uranium mining prospect. Reports on an Aboriginal submission to the Ranger Inquiry asking that the Alligator Rivers Region be handed over to them and made into a national park. Notes that even if the land is handed over to the Aborigines they will not be able to veto mining because of clauses in the Aboriginal Land Rights (Northern Territory) Act 1976, which protect existing interests in land.

471. HUTTON, B., 1978. ABORIGINES: HOW MINING WILL AFFECT THEM, CHAIN REACTION, 3, 4, p6-7.

Reports on Aborigines' concern about the detrimental effects on their society from uranium mining on traditional Aboriginal land in the NT, and presents the testimonies of an Aboriginal person and a social worker to the Ranger Inquiry expressing fears about the effects of alcohol and outsiders on Aboriginal society. Claims that Australian society does not know or care what happens to Aboriginal communities threatened by mining projects, and draws some parallels with the 'devastating' effects of bauxite mining.

472. JOHNSON, R., 1979. BLACKS (FROM OENPELLI) TO SPEAK AT URANIUM RALLIES, DIRECT ACTION, NO. 247, p20.

473. KEEN, I., 1980. THE ALLIGATOR RIVERS ABORIGINES: RETROSPECT AND PROSPECT, IN JONES, R. (ED), NORTH AUSTRALIA: OPTIONS AND IMPLICATIONS, RESEARCH SCHOOL OF PACIFIC STUDIES, AUSTRALIAN NATIONAL UNIVERISTY, CANBERRA, p171-86.

Contrasts the effects of early European and Asian settlement on the Alligator Rivers Aborigines with the incipient spread of large-scale European settlement and mining activities into their region. Identifies and discusses the factors responsible for depopulation of Aboriginal people in the Top End,

outlines Aboriginal attitudes to invasion and adaptation to white settlement, and reviews early Territory policy towards Aborigines. Argues that uranium mining is unlikely to have such drastic effects on the Alligator Rivers Aborigines since they have developed resistance to introduced pathogens and have access to medical services, and since their interests are protected by legislation and served by the NLC. Argues that the development of Aboriginal land rights legislation was inextricably bound up with the development of mining in the NT. Reviews the Ranger Agreement and its provisions relating to Aboriginal interests, and claims that the most profound effects on Aborigines in the region will be caused by royalty payments rather than by the presence of Europeans or of mining.

474. KESTEVEN, S., 1986. THE PROJECT TO MONITOR THE SOCIAL IMPACT OF URANIUM MINING ON ABORIGINAL COMMUNITIES IN THE NORTHERN TERRITORY, AUSTRALIAN ABORIGINAL STUDIES, NO. 1, p43-45.

Indicates some of the problems encountered by the Australian Institute of Aboriginal Studies' Project to Monitor the Social Impact of Uranium Mining on Aborigines in the Alligator Rivers Region. These included the role of the Project's Steering Committee; the difficulty of ensuring representation of Aboriginal people living in the area; research limitations due to inadequate staff and financial constraints; diverse and conflicting demands on the Project; lack of support from the AIAS; inadequate access to data from 'official' sources; Aboriginal suspicion about government involvement; external and internal rivalries and sensitivities; and lack of consideration shown by the Institute towards the Project's researchers and its Aboriginal subjects regarding use of the data collected.

475. LANGTON, M., 1978. SOCIAL PROBLEMS ASSOCIATED WITH URANIUM MINING ON ABORIGINAL LAND IN THE NT: TEXT OF PAPER DELIVERED TO THE ACFOA SUMMER SCHOOL, UNIVERSITY OF HOBART, 20-25 JANUARY, AUSTRALIAN COUNCIL FOR OVERSEAS AID, CANBERRA, 14p.

Discusses problems which the author claims would be created by uranium mining on Aboriginal land in the NT. These problems include the impact of the mining town and the introduction of large numbers of European people into the area, the effects of tourism which it is claimed has increased since the construction of the Arnhem Highway for the uranium mines, the disruption of

traditional Aboriginal society, problems associated with alcoholism and inter-racial sex, and the likelihood of radiation-induced diseases. Assesses the costs and benefits associated with mining royalties, and discusses how the Kakadu National Park proposal will affect Aborigines in the Alligator Rivers Region.

476. LANGTON, M., 1978. STONE AGE JOURNALISM, NEW JOURNALIST, VOL. 30, APRIL, p10-11.

Provides a number of examples in support of claims that Aboriginal people in the Alligator Rivers Region have been 'grossly maligned' in the Australian press since the Fraser government's announcement of the go-ahead for uranium mining. Criticises the emphasis journalists have placed on the amount of royalties Aboriginal people will receive from uranium mining; their failure to mention the Fox Report's recommendations regarding the impact of uranium mining on Aborigines; and the way in which they have ignored the fact that Aboriginal people do not want uranium mining but have no choice as to whether it goes ahead and the fact that mining will have adverse effects on their way of life and land.

477. LANGTON, M. AND SHEA, L., 1978. URANIUM MINING : THE IMPACT ON ABORIGINAL LIFESTYLES, SURVIVAL INTERNATIONAL REVIEW, 3, 3, p12-15.

This article repeats No. 47 except that it omits the section on the Kakadu proposal.

478. LUKAS, I., 1984. TRIBAL LAND BATTLE COMES TO TOWN, SYDNEY MORNING HERALD, 22 JUNE, p5.

Reports on a Sydney press conference held by NLC chairman Galarrwuy Yunupingu as part of a trip to Brisbane, Melbourne and Sydney lobbying for the rights of Aboriginal landowners to determine whether uranium mining should proceed at Koongarra and Jabiluka. Yunupingu argued that denial of those rights refused Aborigines the capacity to exercise self-management.

479. MACCULLUM, M., 1977. DR STRANGELOVES IN ANCIENT AUSTRALIA, NATION REVIEW, 7-13 JULY, p11-13.

Presents an account of the author's visit to the site of the NT uranium mines. Identifies paradoxical Darwin views on uranium mining and environmental protection, describes his impressions of Arnhem Land and bemoans its fate at the hands of the mining

companies. Criticises federal government handling of, and discusses Aboriginal reaction to, uranium mining in the NT. Reviews local union attitudes, and describes a 'depressing' day of meeting mining company officials who gave the impression of being utterly convinced of the rightness of their actions.

480. MARR, D., 1975. THE NEW MINING TYCOONS, THE BULLETIN, 27 SEPTEMBER, p21.

States that prospecting for uranium in the NT is being delayed by negotiations between the AAEC and Aboriginal land councils. The AAEC has been refused the right by the NLC to explore any part of Arnhem Land and at the other area of particular interest to it, the Ngalia Basin, the Commission is having to negotiate with the Central Land Council about the sort of exploration to be carried out.

481. MCCARTHY, P., 1983. BLACK DIVISION OVER YELLOWCAKE, NATIONAL TIMES, 9-15 DECEMBER, p16.

Uses the case of the Koongarra project to illustrate the divisions which exist among Aboriginal people and within Aboriginal organisations regarding the desirability of establishing uranium mines on Aboriginal land. Comments briefly on the impact of uranium mining on Aborigines to date, stressing that in economic and social terms it has generated both positive and negative effects.

482. MILLIKEN, R., 1978. THE MAN WHO COULD HALT RANGER'S PLANS, NATIONAL TIMES, 30 JANUARY-4 FEBRUARY, p19.

Reviews draft mining proposals presented to the Ranger group of companies by the NLC. Reports the views of NLC Chairman Galarrwuy Yunupingu on the effectiveness of NT land rights legislation in allowing Aboriginal veto of uranium mining on traditional land, and lists legal and other white experts assisting the NLC. Gives a resume of Yunupingu's background.

483. MILLIKEN, R., 1984. CONFERENCE EVE REPORT, URANIUM'S IMPACT ON ABORIGINES: DEVASTATING, NATIONAL TIMES, 6-12 JULY, p3, 4.

484. MOLONEY, J., 1973. URANIUM MINERS AND ABORIGINES IN ARNHAM LAND, ABSCHOL, CARLTON, VICTORIA, 21p.

Expresses concern regarding the ALP's apparent change in attitude towards Aboriginal interests and its encouragement of uranium mining since coming to power

in December 1972. Criticises Queensland Mines Limited's campaign to renew its uranium mining leases in Arnhem Land, questions the need for development of Arnhem Land deposits, and predicts that most Cabinet members will support mineral development in 'the national interest', thus protecting company rights rather than those of the people. Outlines foreign interest in the mining companies involved in Arnhem Land uranium projects, claims that the Australian Mining Industry Council is controlled by overseas interests and that the activities of overseas companies and pro-mining lobbyists in Australia are tacitly supported by a ruling white elite which has neglected or opposed Aborigines' interests. Doubts whether government and companies can be trusted in their dealings with those interests.

485. MOORE, J., 1982. ABOVE THE VOICES OF JABILUKA IS THE LANGUAGE OF THE LAND, HABITAT AUSTRALIA, NO. 10, AUGUST, p7-10.

The author, an artist who has lived in the Kakadu region for six years, reviews Aboriginal and European attitudes towards the land, Aboriginal views on the effects of outsiders (including miners) on Kakadu and their lives, and presents her impressions of the Kakadu landscape.

486. MULLIGAN, M., 1979. HOW BLACKS APPROVED URANIUM MINES, DIRECT ACTION, NO. 256, p9.
487. NIKLAUS, P., 1982. LAND, POWER AND YELLOWCAKE (PART 1), AUSTRALIAN SOCIETY, 3 DECEMBER, p3-6.

Outlines the efforts of uranium mining companies to obtain the approval of Aboriginal land owners for development of the Jabiluka and Koongarra deposits. Discusses the role of the Northern Land Council in negotiating mining agreements, and the extent to which the Council actually carries out the consultations with traditional owners required by the Aboriginal Land Rights (Northern Territory) Act 1976. Outlines the events leading to the signing of the Jabiluka Agreement, and notes that the Koongarra owners have refused to enter into negotiations with the project developer.

488. NIKLAUS, P., 1982. LAND, POWER AND YELLOWCAKE (PART 2), AUSTRALIAN SOCIETY, 17 DECEMBER, p19-22.

Discusses the functions and structure of the Northern Land Council, and the extent to which it represents

Aboriginal interests, suggesting that its dependence on mining royalties for its funding may lead Council staff to press for mineral developments inimical to Aboriginal interests. Outlines the policies of the Northern Territory government towards mining and Aboriginal land rights, which are based on the premise that mining is central to the Territory's economic prospects and must take first priority. Argues that the presence of uranium in the Kakadu region has denied Aborigines the right to control their own lives.

489. NIKLAUS, P., 1983. LAND, POWER AND YELLOWCAKE (PART 3), AUSTRALIAN SOCIETY, 1 FEBRUARY, p25-29.

Discusses the social impact of uranium mining and associated activities on Aboriginal people in the Alligator Rivers Region and comments on their use of royalty income generated by uranium mining. Describes the events surrounding a spillage of contaminated water at the Nabarlek uranium mine in March 1981. Reviews the circumstances in which the Ranger Agreement was signed and their adverse effects on some of the Aborigines involved, and discusses the NLC's role in its negotiation and in discussions which preceded the decision by Koongarra traditional owners not to initiate discussions for an agreement with Denison Mines. Refers to the experience of indigenous people in the United States with uranium mining, and argues that the health risks associated with uranium mining are now well known and that insufficient effort is being made to convey these to Aborigines in the Alligator Rivers Region.

490. NORTHERN TERRITORY DEPARTMENT OF MINES AND ENERGY, [1978]. URANIUM MINING, WHAT IT MEANS TO YOU AND YOUR FAMILY, NTDME, DARWIN, 27p.

Appears to be aimed at Aboriginal communities and presents a general introduction to the various uses of uranium and to uranium royalties and Aboriginal land rights. Claims that employment opportunities for Aborigines are created by uranium mining, that mine workers are quite safe, that strict safety measures will protect the environment and that the government considered the findings of the Ranger Inquiry and decided that mining could proceed as long as the conditions it stipulated to protect the Aboriginal people and the environment were followed. Concludes with assurances about the safety record of uranium mining.

491. PANCONTINENTAL MINING LIMITED, 1982. ABORIGINAL BUSINESS OPPORTUNITY PLAN, JABILUKA PROJECT, SYDNEY, 49p.

Text of a Business Plan which, it is claimed, shows how Aboriginal businesses may become involved in providing goods and services required by the Jabiluka project, assists an Aboriginal person or company identify and exploit opportunities available during the construction and operations stages of the project, and defines what is meant by an 'Aboriginal Business'. Explains how Pancontinental will attempt to inform Aborigines about relevant business opportunities and offer advice to those Aborigines wishing to explore them. Provides a brief description of the types of goods and services (and supply dates) which may be required by the project. Discusses Pancontinental's procedures in obtaining goods and services (for example details of contract letting), general business opportunities available to Aborigines, and the structure Aboriginal businesses might adopt in order to take advantage of these opportunities. Offers advice on the preparation of tenders, and suggests sources of finance to establish a business.

492. RABBONE, M., 1977. BLACK LAND RIGHTS AND URANIUM, CAESARIAN, VOL. 8, 27 SEPTEMBER, p8-9.

Comments briefly on the treatment of Australian Aborigines by British colonial settlers, and draws some parallels with the operations of modern day mining companies. Presents a statement by Silas Roberts, chairman of the NLC, explaining Aborigines' relationship with their land and expressing their concern about the effects of uranium mining on traditional Aboriginal society. In the light of previous mining developments in the NT, questions whether the uranium industry would, as the mining companies claim, help improve Aboriginal lifestyles. Presents a story written by a member of the NLC about Aborigines, strangers and traditional lands.

493. RABBONE, M., 1978. LEAVE IT IN THE GROUND, DIRECT ACTION, NO. 229, p3.

Reports on the outcome of a meeting of traditional Aboriginal land owners at Oenpelli to discuss the Ranger Agreement. States that the Fraser government has misrepresented the Aboriginal position by claiming that the ALP and anti-uranium groups have manipulated Aborigines into opposing uranium mining. Argues that the ALP and Aboriginal communities should join together in opposing the Fraser government in the

struggle for Aboriginal land rights and against uranium development.

494. ROBERTS, J., 1978. FROM MASSACRES TO MINING: THE COLONISATION OF ABORIGINAL AUSTRALIA, CIMRA AND WAR ON WANT, LONDON, CHAPTER 19, URANIUM AND ABORIGINAL LAND, p137-149.

Discusses the issue of uranium mining on traditional Aboriginal land in the Alligator Rivers Region, presents an outline of the NT uranium projects, and describes the natural features of the area and how the area is regarded by Aboriginal people. Critically reviews the Fraser government decision allowing uranium mining and export to proceed and discusses Aboriginal reactions. Discusses the environmental impact of uranium mining, arguing that the whole region could be 'poisoned' and the health of the Aboriginal people seriously threatened.

495. ROBERTS, J., 1979. THE URANIUM EL DORADO, NEW INTERNATIONALIST, NO. 77, JULY, p15.

496. SAMUEL, P., 1978. FRASER TOLD OF NEED FOR START BEFORE THE 'WET', BULLETIN, 9 MAY, p32.

497. SHEA, L., 1977. RANGER 2, GROK, VOL. 10, AUGUST, p11-12.

Presents two short articles.

1. Discusses the views of Sir Charles Court and of local Aborigines on proposed uranium mining at Yeelirrie in Western Australia, contrasts NT mining regulations with what Court would accept, and argues that Court's attitude shows a disregard for the recommendations of the Fox Report and Aboriginal land rights, and 'a crude commitment to dig and sell whatever the consequences'.

2. Discusses the Second Ranger Report's recommendations concerning uranium mining and Aborigines, reviews royalty payments, environmental safeguards and other measures recommended in the report to protect Aboriginal interests, including the establishment of a national park in the Alligator Rivers Region.

498. SHENTON, E., 1976. BLACKS AND URANIUM, WORONI, 28, 4, p14-15.

Reports the major arguments contained in a submission by Gordon Briscoe (Advisor to the Central

Australian Aboriginal Congress, Alice Springs) to the Ranger Inquiry on the effects of the proposed uranium mine at Jabiru. Briscoe argues that this mine would set a dangerous precedent for mining on other Aboriginal land and demands that no decision to develop the area be made until the Aboriginal Land Rights (Northern Territory) Bill has been passed. Dis-cusses the relationships between Aboriginal people and their land, and points out the importance of the Ranger Inquiry as a test case for the Woodward Commission's recommendations on Aboriginal land rights.

499. SPRATT, D., 1978. THE STRUGGLE AGAINST URANIUM MINING, LOT'S WIFE, VOL. 18, 29 MARCH, p10-11.
500. STANTON, V., 1976. RANGER URANIUM ENVIRONMENTAL INQUIRY NORTHERN TERRITORY - A STATEMENT OF CONCERN FOR ALL ABORIGINAL AUSTRALIANS, BOOMERANG BULLETIN, 7 OCTOBER, 2p.
501. SYKES, T., 1978. URANIUM DEALS ARE NO TIMES FOR DREAMTIMES, BULLETIN, 10 OCTOBER, p22-24,27.

Attempts to explain the politics of uranium mining in the NT. Reviews the functions of the NLC and explains that, in view of Aboriginal powerlessness to veto mining at Ranger, it has sought to negotiate the best deal possible. Comments on the role of Alec Bishaw, the NLC's chief executive, on Yunupingu's future as chairman, NSW Attorney General Walker's personal advice to Yunupingu, and Blitner's position on the council. Outlines dissensions within the Aboriginal communities (exacerbated, claim senior NLC members Blitner and Yunupingu, by advice from white Labor politicians), which create problems in achieving consensus agreement.

502. TARRANT, J., 1978. ABORIGINAL LAND RIGHTS VS URANIUM MINING, LOT'S WIFE, VOL. 18, 29 MARCH, p14-15.

Reviews the conflicting views of mining companies and Aborigines on land use and land rights with particular reference to NT uranium mining. Outlines Aborigines' opposition to mining and their distrust of government, claims they were informed of decisions to mine rather than consulted about those decisions, speculates regarding the benefits of mining royalties to Aboriginal people, and gives an example of alleged broken mining company promises.

503. TATZ, C., 1982. ABORIGINES AND URANIUM AND OTHER ESSAYS, HEINEMANN EDUCATIONAL AUSTRALIA, MELBOURNE, CHAPTER 5 (p118-64), CHAPTER 6 (p165-90).

Chapter 5 briefly discusses three key elements which are juxtaposed in the Alligator Rivers Region - uranium, Aborigines and conservation (the latter in the form of Kakadu National Park). Describes the establishment of the AIAS's Project to Monitor the Social Impact of Uranium Mining in the Alligator Rivers Region, and outlines the composition of its Steering Committee and the Committee's interpretation of the Project's task. Raises the question of 'neutrality' in the Project's research work. Discusses key areas of uranium's impact on Aborigines in the Region, including the effect on sacred sites, the impact of white-dominated urban development, conflict arising from mining company use of the Oenpelli road, alcohol and related social problems, radiation hazards, Aboriginal employment and training, the effects of mining revenue moneys, Aboriginal involvement in management of Kakadu National Park, and the role of the Northern Land Council. The final section raises the question of whether Aborigines can reproduce or enhance their civilization in the face of uranium mining intrusion.

Chapter 6 examines the implications for Aborigines in the Alligator Rivers Region of developments in the NT and Australian economies and in international uranium markets, and of the Fraser government's plans to delegate Commonwealth powers relating to regulation of uranium mining and environmental monitoring to the states. Reviews the work to date of the Project to Monitor the Social Impact of Uranium Mining. Outlines developments during September 1980-November 1981 relating to a number of the impact issues raised in Chapter 5, and discusses three new issues which arose during that period - a study of Aborigines and the criminal law, negotiation of a mining agreement for Jabiluka, and the leakage of radioactive material from the Nabarlek mine in March 1981.

504. URANIUM ADVISORY COUNCIL, 1982. THE POTENTIAL SOCIAL IMPACT OF THE KOONGARRA AND JABILUKA URANIUM MINING PROJECTS ON THE ABORIGINAL PEOPLE OF THE ALLIGATOR RIVERS REGION, IN URANIUM ADVISORY COUNCIL, ANNUAL REPORT 1981/82, AGPS, CANBERRA, p13-25.

Presents a profile of the Alligator Rivers Region, its inhabitants and its economy, attempts to identify factors which have shaped the Region's society, and notes that there has been a surge of activity since 1979 (most apparent around Jabiru) associated with the

Nabarlek and Ranger mines and with tourism to the Kakadu National Park. Attempts to assess whether, over time, the social impact of the Jabiluka and Koongarra projects, if developed concurrently with production from Nabarlek and Ranger mines, will on balance be beneficial or harmful to the Aboriginal people of the Region and their way of life. Defines the Region, acknowledges reliance on AIAS studies in analysing Aboriginal history, identifies non-Aboriginal users of the Region, and considers some recent social developments including the Stage 2 Alligator Rivers Region Land Claim. Considers the potential impact of Jabiluka and Koongarra in terms of construction and mining population, financial impact and Aboriginal employment. Reviews Aboriginal attitudes to mining, concludes that their willingness to enter into negotiations is still conditioned by a feeling that mining is inevitable, but identifies two important developments which might contribute to a further change in Aboriginal attitudes: a more confident approach to negotiations because their land tenure is now on a more secure basis; and a better appreciation of the benefits that can flow from mining royalties.

505. VON STURMER, J., 1982. ABORIGINES IN THE URANIUM INDUSTRY: TOWARDS SELF-MANAGEMENT IN THE ALLIGATOR RIVERS REGION, IN BERNDT, R.M. (ED), ABORIGINAL SITES, RIGHTS AND RESOURCE DEVELOPMENT, UNIVERSITY OF WESTERN AUSTRALIA PRESS, PERTH, p69-116.

The central theme of the article is 'the meaning, relevance, effectiveness and future of the policy of Aboriginal self-management', a theme analysed both in general terms and in relation to developments in the Alligator Rivers Region. In the latter context, issues considered include the relationship between payment of uranium royalties and self-management and the impact of uranium payments on government provision of services to Aborigines, the role of mining companies in providing welfare services to Aboriginal landowners, and the impact on Aboriginal society of outsiders drawn into the Alligator Rivers Region by mining, tourism and related activities. Discusses ways in which Aborigines may seek to deal with the influx of outsiders, and also outlines some different interpretations of the impact of external influences, including uranium royalties, on the distribution and exercise of power in Aboriginal society.

506. WESTERN DESERT PUNTUKURRUPARNA ABORIGINAL PEOPLE, 1987. URANIUM EXPLORATION IN THE RUDALL RIVER NATIONAL PARK: AN ABORIGINAL PERSPECTIVE, ABORIGINAL LAW BULLETIN, 26 JUNE, p7-8.

507. YULE, I., 1978. URANIUM MINING IN THE NORTHERN TERRITORY [CHRISTIAN ACTION GROUP, GALIWINKU PARISH], WALKER PRESS, FITZROY, VICTORIA, 35p.

Presents an illustrated and simplified overview of the effects of uranium mining and nuclear power, aimed at Aboriginal communities. Illustrates scenarios regarding the consequences for Aborigines of uranium mining in the Alligator Rivers Region, refutes claims that mining would generate employment for Aborigines and enhance their welfare, and reiterates Aboriginal opposition to mining on their land. Calls on Aborigines to communicate to tribal leaders, politicians and newspapers their views on uranium mining and nuclear power.

508. ZORN, S., 1978. SURVEY OF ABORIGINES' RIGHTS IN NT URANIUM DEVELOPMENT (PART 1), ABORIGINES' CASE FOR A BITE OF THE NT URANIUM REVENUE (PART 2), SYDNEY MORNING HERALD, 12,14 AUGUST, p23,25; p6.

Presents an edited version of NLC lawyer Stephen Zorn's speech about the Aboriginal position in uranium mining negotiations. Claims that Aborigines in the Alligator Rivers Region would gladly forego royalties if assured that mining would not occur. Argues that the Aboriginal Land Rights (Northern Territory) Act 1976 does not protect Aborigines from mining declared to be 'in the national interest' and that, faced with the Fraser government's decision to proceed with uranium mining and the Act's legal limitations, the NLC has no option but to seek the best possible deal for the Aboriginal people it represents. Outlines the NLC's three fundamental objectives: protection of the land; preservation of Aboriginal society in the face of white influence; and achievement of a fair and responsible financial settlement. Reviews the management and impact of royalty revenue on Aborigines, and makes some comparisons with American Indians. Attempts a projection of profits from Ranger and Nabarlek, criticises the terms of the Commonwealth government's financial involvement in Ranger, and argues that the NLC's claims are not only comparatively modest but also represent one last attempt to extend the benefits of mining to the wider community.

Cross References

56, 78, 84, 93, 114, 198, 207, 246, 283, 318, 364, 400, 401, 511, 516, 524, 528, 654, 666, 717, 732, 733, 734, 735, 736, 737, 743, 745, 778, 805, 832, 837

The Ranger Agreement

509. ANON., 1978. HOW VINER FORCED BLACKS TO SIGN RANGER AGREEMENT, DIRECT ACTION, 23 NOVEMBER, pl6-17.

Presents NLC delegate Leo Finlay's account of the meetings which led to the signing of the Ranger Agreement by the NLC on 3 November 1978. Describes the meetings at Bamyili and Oenpelli, lists people present, claims many traditional owners were absent and were not subsequently consulted, implies that those Aborigines present were pressured by NLC Chairman Yunupingu's and Liberal Aboriginal Affairs Minister Viner's insistence that they must have had enough after six years of negotiations. States Finlay's opposition to the signing and his dismay at the manner and haste in which it took place.

510. ANON., 1979. RANGER: AN AGREEMENT TO UNDERMINE, ANTI-URANIUM NEWS, NO. 8, pl-4.

Outlines some of the background to the signing of the Ranger Agreement, critically reviews the Agreement itself, and gives a chronological account of events leading up to its signing. Claims that these events have been characterised by dishonesty and denial of information, and that the Agreement represents a denial of Aborigines' rights to control their own land. Critically examines the role of the NLC and certain members of its non-Aboriginal staff. Reports Aboriginal fears about the possible appointment of an arbitrator in the event of not reaching an agreement. Expresses concern that radiation-induced diseases, one of four factors mentioned by a 1973 NT Medical Service Report as affecting the health of Oenpelli Aborigines, has been ignored by subsequent reports.

511. ABORIGINAL LAND RIGHTS INFORMATION GROUP, 1978. LOOK AT THE RANGER AGREEMENT, ALRIG, ELTHAM, VICTORIA, 17p.

An article written by supporters of land rights in simple English with the assistance of diagrams to help Aboriginal people understand the issues involved in the Ranger Agreement they are being asked to sign. Topics covered include the pressure by government on Aboriginal people to sign the Agreement, the need to refer it back to traditional owners for more talks, the possibility of going to Arbitration, secrecy provisions of the Atomic Energy Act 1953, environmental protection and royalties. Concludes that the Agreement is not a good one for Aboriginal people.

512. ELLIOTT, M., 1978. REPORT FROM UP NORTH, TIME AND ECOLOGY, OCTOBER, p5-6.

Presents a day-by-day account of the events surrounding the non-signing of the Ranger Agreement.

513. FELIX, 1978. FROM GLASS BEADS TO GOLD PENS, THE RANGER AGREEMENT'S PLACE IN HISTORY, LEGAL SERVICES BULLETIN, 3, 6, p225-228.

Critically reviews the conduct and outcome of the Ranger negotiations between Aboriginal interests and government representatives. Claims that the subsequent Agreement was 'complex, confusing and defective' and that, contrary to government claims, Aborigines did not have enough time to consider the 'package'. Reviews Stephen Zorn's initial report on the Ranger Agreement to the NLC and his subsequent misgivings regarding it. Critically reviews the Agreement's environmental protection clauses and the process of consultation with traditional Aboriginal landowners, and claims the government exerted pressure for an early conclusion to negotiations and signing of the Agreement.

514. FINLAY, L., 1979. WE THOUGHT WE WERE GOING TO THE AIRPORT BUT WE WENT TO THE OFFICE AND SAW THE AGREEMENT ALL SET TO BE SIGNED, NATIONAL STUDENT, NO. 10, p10-11.

An eyewitness account of what happened during the Ranger negotiations between the NLC and the Commonwealth government. Criticises the government approach and NLC chairman Galarrwuy Yunupingu's role in the negotiations. Claims that traditional owners were not adequately consulted or given sufficient time to reach a consensus decision.

515. FRIENDS OF THE EARTH, 1978. CYCLONE IN THE NORTH, FRIENDS OF THE EARTH, MELBOURNE, 14p.

Discusses the role of the NLC in negotiating the Ranger Agreement and the agreement for the lease of the Kakadu area to the Australian National Parks and Wildlife Service. Outlines the structure and functions of the NLC. Critically reviews the terms of the Ranger Agreement, and claims that it offers little scope for NLC involvement in environmental protection, some scope for independent supervision of protection measures and sweeping power for the Commonwealth government. Presents a day-by-day account of the events leading up to the signing of the Ranger Agreement.

516. GRAVES, R., 1979. RANGER: THE EVENTS BEHIND THE SIGNING OF THE AGREEMENT, CHAIN REACTION, 4, 2-3, p46-67.

Examines the Ranger Agreement and the related Kakadu National Park Lease Agreement, documents in detail the events that led up to the former's 'sudden acceptance'. Includes a brief description of some wildlife allegedly threatened by uranium mining in the Alligator Rivers Region. Reviews media response to the Ranger Agreement, and provides profiles of some key Aboriginal participants in the events leading to its signing.

517. MASTERSON, S., 1978. A GREAT DAY FOR NORTHERN ABORIGINAL PRIDE, NATION REVIEW, SEPTEMBER/OCTOBER, p3.

Reports on events leading up to the Red Lily Lagoon meeting called to ratify the Ranger Agreement, and the legal action subsequently taken by Aborigines against the NLC decision to sign the Agreement.

518. MILLIKEN, R., 1978. HOW THE ABORIGINES FARED IN THE RANGER AGREEMENT, NATIONAL TIMES, 3-9 SEPTEMBER, p8-9.

Outlines the terms of the draft Ranger Agreement, negotiated between Stephen Zorn (representing the NLC which acted for the Aborigines involved) and the Commonwealth government's chief negotiator (acting for the Ranger consortium). Notes Zorn's rating of environmental and health safeguards above financial compensation, because of his view that with no right of veto in the Agreement the Aborigines are negotiating under duress. Also reports Dr Coombs' observations that government haste to finalise agreements will prevent adherence to the Aboriginal tradition of protracted discussion amongst all the people followed by a consensus decision, and his warning that those not involved in the NLC's decision-making process will not feel bound by its agreement. Speculates on the environmental outcome of mining operations in the NT.

519. PARSONS, D., 1978. INSIDE THE RANGER NEGOTIATIONS, ARENA, NO. 51, p134-143.

Claims that the confusion surrounding the proposed Ranger Agreement stems from a longstanding dilemma within the NLC. Argues that the NLC is funded from mining royalties and managed by people who represent government, and that as a result it fails to represent traditional Aboriginal views. Discusses meetings, statements and legal battles involving the NLC, government negotiators and traditional owners in efforts to reach agreement. Strongly criticises the

role of NLC Chairman Yunupingu and NLC Manager Bishaw in the negotiations. Expresses concern at the widely-held belief that the anti-uranium movement is exploiting Aboriginal land rights in order to stop mining, and warns that any Aboriginal decisions that are reached by consensus must be respected. Recommends that anti-uranium groups help Aboriginal people become more aware of the implications of uranium mining so that they can make an informed decision, and help Aborigines in their quest to become independent of government money or uranium royalties.

520. QUINN, M., 1978. RANGER SIGNING OFF - ABORIGINALS GO FOR DELAY, TIME AND ENERGY, VOL. 5, p3-4.

Reviews negotiations between the Fraser government and NLC chairman, Galarrwuy Yunupingu, designed to secure the NLC's signature to the Ranger Agreement. Claims that pressure was exerted on the NLC for a speedy conclusion to negotiations and reports Aboriginal community reaction to news of the decision to sign. Calls on white anti-uranium activists to prove their commitment to the Aboriginal cause in the light of criticisms that Aborigines are being used as cannon-fodder in confrontations with the government.

521. TOMLINSON, J., 1982. ZORN DID WELL!!!, IN TOMLINSON, J., BETRAYED BY BUREAUCRACY, WOBBLY PRESS, DARWIN, p46-54.

Critically reviews events leading up to the signing of the Ranger Agreement. Criticises the part played by government officials and the NLC's negotiator, Stephen Zorn, and the Ranger Agreement itself. Claims the government and mining companies will ruthlessly exploit the region's uranium resources with no regard to the environment or Aboriginal interests.

Cross References

446, 458, 463, 473, 489, 493, 830

Aborigines and Uranium Royalties

522. ANON., 1981. MINING BONANZA FOR NT ABORIGINES, NEWS WEEKLY, 1 JULY, p8, 9.

Explains how Nabarlek and Ranger uranium royalties are being spent, providing some details on recent and planned expenditure by the Gagudju Association. Reports that increased funding has increased the number of staff and the scope and strength of the NLC, speculates about how much the royalties will benefit 'white advisors' rather than Aboriginal communities themselves, but concludes that the NLC's expansion will at least place Aboriginal communities on an equal footing with mining companies and with the NT government.

523. ALTMAN, J.C., 1983. ABORIGINES AND MINING ROYALTIES IN THE NORTHERN TERRITORY, AUSTRALIAN INSTITUTE OF ABORIGINAL STUDIES, CANBERRA, 164p.

Sections of the book analyse the financial provisions of the Ranger and Nabarlek mining agreements (p56-61), the operations of the Aboriginal Benefits Trust Account which distributes royalty payments under those agreements (p70-87), and the early history of the Aboriginal associations established to receive the proportion of royalty payable to communities affected by the Ranger, Nabarlek and Jabiluka projects (p120-33).

524. HAWLEY, J., 1981. CASH BINGE TEACHES ABORIGINES CONTROL, AGE, 1 JULY, p11.

Reviews effects of uranium mining royalties on Aboriginal communities in Arnhem Land since production began at the Ranger and Nabarlek mines. Outlines the administration and use of royalties and the function of the Land Councils. Reports Aborigines' claims that in retrospect they wish mining had never happened and their assessment of the effects of money, alcohol and an influx of outsiders on traditional Aboriginal society. Reports Aborigines' feelings of helplessness in the face of the ability of mining companies and government to override their opposition. Observes that the NT is the only state where mining companies legally have to negotiate with Aborigines.

525. KESTEVEN, S., 1983. THE EFFECTS ON ABORIGINAL COMMUNITIES OF MONIES PAID OUT UNDER THE RANGER AND

NABARLEK AGREEMENTS, IN PETERSON N. AND LANGTON M. (EDS), ABORIGINES, LAND AND LAND RIGHTS, AIAS, CANBERRA, p358-384.

Outlines payments to Aboriginal people provided for in the Ranger Agreement, and describes the structures established to channel monies from Ranger and Nabarlek to Aboriginal recipients. Discusses distribution of the funds disbursed to date, providing a detailed analysis in the case of Nabarlek. States that distribution of Nabarlek monies has caused considerable acrimony, and analyses the causes and consequences of this acrimony. Analyses the uses to which mining moneys have been put and limitations on the uses to which it can be put in the Alligator Rivers Region. Examines the consequences of the payment of mining moneys for local services and for individuals, and analyses the social ramifications of the increased incomes they bring.

526. MCGEOUGH, P., 1981. ABORIGINES MEET THE ROYALTIES CHALLENGE, CANBERRA TIMES, 21 JUNE, p7.

Assesses the effects of uranium royalties on Aboriginal culture and lifestyle. Refers to initial misuse of funds, and discusses future investment strategies including real estate purchases, outstation development, and employment of highly qualified professional staff and advisers to help in future projects and land rights negotiations.

527. MILLIKEN, R., 1978. RANGER: WHY NLC DUG ITS TOES IN, NATIONAL TIMES, 16 SEPTEMBER, p27.

528. O'FAIRCHEALLAIGH, C., 1986. THE ECONOMIC IMPACT ON ABORIGINAL COMMUNITIES OF THE RANGER PROJECT: 1979-1985, AUSTRALIAN ABORIGINAL STUDIES, NO. 2, p2-14.

Examines the economic impact of the Ranger uranium project on Aboriginal people during the period 1979-1985. Provides detailed information on the use of royalty-related payments made to traditional owners, and examines more briefly two other areas of impact, employment and training opportunities for Aborigines and changes in their access to social and other services resulting from the establishment of Ranger and its township, Jabiru.

529. STANLEY, O., 1982. ROYALTY PAYMENTS AND THE GAGUDJU ASSOCIATION, IN LOVEDAY, P. (ED), SERVICE DELIVERY TO

REMOTE COMMUNITIES, NORTH AUSTRALIA RESEARCH UNIT,
DARWIN, p36-49.

Outlines the structure and functions of the Gagudju Association, details the type and amount of payments received by the Association from uranium mining companies and the Australian National Parks and Wildlife Service (ANPWS), explains the distribution of revenues and describes some projects that have been funded by this source of income. Discusses Aboriginal outstations, employment opportunities, and housing, education and other services provided for members of the Association in conjunction with ANPWS and Ranger Uranium Mines. Analyses the nature of the agreements negotiated between Aborigines and uranium mining companies and describes the Association's investment projects.

Cross References

307, 432, 443, 468, 473, 475, 489, 505, 508, 546, 829

PART FIVE

ECONOMIC ASPECTS

Economic Impact of Uranium Mining/Economics of the Uranium Industry

530. ANON., 1978. THE UNECONOMICS OF URANIUM, NEW JOURNALIST, NO. 30, APRIL, p26-30.

Critically assesses the Liberal/NCP government's claims of massive economic benefit from the export of uranium by pointing out that there is a drastic slump in demand accompanied by upgraded estimates of supply from elsewhere; that uranium demand is particularly subject to political influences; and that uranium mining is highly capital intensive and does not create great employment opportunities.

531. ANON., 1982. ANTHONY'S URANIUM REVIEW: STRONG REACTION TO US IMPORTS LIMITS, ENERGY (SYDNEY), 10, 10, p13-16.

532. ANON., 1984. THE ECONOMIC COSTS OF ROXBY DOWNS, PLANET (DEAKIN UNIVERSITY), 8,7, p13.

Claims that the positive economic impact of the Roxby Downs project will be minimal. State government revenues will be modest, and may be exceeded by its expenditure on infrastructure for the project. Direct and indirect employment will be limited, reflecting the capital intensity of mining and dependence on imported plant and equipment. Suggests that state government resources invested in Roxby Downs could generate considerably more employment in other uses.

533. BARNETT, D.W. AND ANDERSON D.L., 1983. TAXATION OF URANIUM MINING IN CANADA AND AUSTRALIA, RESOURCES POLICY, 9,4, p252-260.

Assesses the impact of the Canadian/Saskatchewan and the Australian/Northern Territory tax regimes on a 'representative' uranium mine (Key Lake in northern Saskatchewan), using a traditional discounted cash flow model. Outlines both tax systems, the assumptions on which the model is based, and details of the discounted cash flow calculations. The major findings are that while the Canadian system appropriates up to 85 per cent of incremental sales, it is extremely sensitive to

profitability and generates less tax than its Australian counterpart at uranium prices less than \$US32 per lb U308. The Australian system is, in contrast, regressive, and at lower prices captures a significantly larger proportion of available economic rent.

534. BARNETT, D.W. AND ANDERSON, D.L., 1984. QUANTITATIVE ANALYSIS OF THE TAXATION OF URANIUM MINES IN AUSTRALIA AND CANADA, MATERIALS AND SOCIETY, 8, 1, p13-28.

535. BROOKS, C.C., 1978. ECONOMIC ASPECTS [OF THE URANIUM ISSUES], ISSUES 1977, DEPARTMENT OF CONTINUING EDUCATION, UNIVERSITY OF ADELAIDE, NO. 59, p61-67.

Briefly relates uranium supply to demand and cost on a worldwide basis, and presents estimated figures for employment, export income, corporate tax and profit from uranium mining in Australia which the author claims show some incentive for Australia to develop and sell uranium.

536. CLAYTON, G., 1977. URANIUM MINING: IMPACT ON THE AUSTRALIAN ECONOMY, MAUM, MELBOURNE, 5p.

537. COOK, L.H. AND TRENGOVE, C.D., 1982. THE ECONOMIC IMPACT OF THE OLYMPIC DAM DEVELOPMENT, DISCUSSION PAPER NO. 22, CENTRE OF POLICY STUDIES, MONASH UNIVERSITY, MELBOURNE, VARIOUS PAGINGS.

Provides a brief history of exploration for and discovery of the Roxby Downs copper/uranium/gold deposit and considers the conditions which will determine whether development will go ahead. Discusses production and marketing of co-products, mainly gold and uranium, and outlines the structure of, and government involvement in, the world nuclear industry and the Australian uranium industry. Briefly analyses the costs and benefits of the proposed project to the developers and to Australia, concluding that a social cost/benefit analysis is not feasible because of lack of relevant data. Discusses a range of issues raised by the Roxby Downs Indenture Agreement and more generally by government involvement in the project. Analyses the direct and indirect employment and production effects of Roxby Downs on the South Australian economy, distinguishing between the construction and production phases and making projections on the basis of 'optimistic', 'pessimistic' and 'in between' scenarios.

538. DEANS, A., 1982. THE REAL BENEFITS OF ROXBY DOWNS, AUSTRALIAN BUSINESS, 22 JULY, p55-56,58.

Outlines the economic benefits likely to be associated with development of Roxby Downs under different assumptions regarding the scale of the project. Focuses mainly on additional economic activity resulting from Roxby's demand for goods and services; expects a high proportion of this demand to be met from within South Australia, and its impact on employment to be substantial - state job multipliers quoted are 5.5 for the construction phase and 3.5 for the operational phase.

540. HARRIS, S., 1978. ECONOMICS OF URANIUM MINING IN AUSTRALIA, CURRENT AFFAIRS BULLETIN, 1 APRIL, pl8-30.

Identifies and discusses the cost factors which influence the economics of uranium mining in Australia, and claims that high ore grades and open cut mining methods should keep Australian uranium at the lower cost end of the industry. Describes uranium's characteristics and world distribution, discusses factors which influence the market for uranium in general and for Australian uranium in particular, and predicts that both demand and supply will grow rapidly but that market imbalances will occur, causing price instability. Assesses the benefits and costs of uranium mining to Australia, arguing that such an assessment must include consideration of the relationship between economic and social benefits and costs, including moral and ethical issues. Claims that if Australia, in the light of these wider issues, decided to forego the income from uranium exports, the cost would be ultimately borne in terms of smaller real wage increases and fewer opportunities for redistribution of income.

541. HARRIS, S., 1978. WILL AUSTRALIA'S LOW COST URANIUM BE INTERNATIONALLY COMPETITIVE?, NUCLEAR ENGINEERING INTERNATIONAL, NOVEMBER, p39-41.

Discusses the factors associated with the economics of mining uranium, and reviews the world uranium market and Australia's potential for export. Discusses the Ranger Inquiry's contribution to the diffusion of political opposition to uranium mining, the role of nuclear safeguards, and the political influence of importing governments in uranium marketing. Argues that price instability will continue to characterise uranium markets if supply varies significantly and

demand remains relatively fixed, and that this fact provides some support for phased mining development and provision of an international price floor. Claims that policies of consuming countries, in addition to market prospects and domestic policies, will be important determinants of the pace of mine development. Information on Australia's uranium resources is provided in the text and in a table giving details of major uranium projects.

542. HASELHURST, D., 1983. AUSTRALIA: URANIUM GIANT LIMPS ON EXPORT FRONT, BULLETIN, 11 OCTOBER, p130-132.

Outlines the massive scale of reserves at the Roxby Downs deposit, along with projections of world uranium demand and potential export earnings for Australia. This potential is indicated by the fact that with only two mines currently allowed to operate (Ranger and Nabarlek) uranium is already Australia's 10th largest export earner (\$360m in 1982/83), but realising it fully depends on a change to the ALP's anti-uranium mining platform at the National Conference in July (1984). In the absence of change, Australia's main competitors (Canada and South Africa) will benefit.

543. KEMENY, L.G., 1983. URANIUM MINERS POISED FOR BIG LEAP IN COMPETITIVE MARKET, ERT ENERGY NEWS JOURNAL, 5, 5, p44, 46.

544. MALONE, P., 1982. MANY UNANSWERED QUESTIONS IN ROXBY DOWNS BILL, AUSTRALIAN FINANCIAL REVIEW, 16 MARCH, p12.

Critically analyses projections of the economic benefits likely to be associated with the Roxby Downs project, and some economic and financial aspects of the Roxby Downs Indenture Bill introduced into State Parliament by the South Australian government in early March 1982. Discusses the passage of the bill through parliament and the position likely to be adopted by the Labor opposition and the Upper House.

545. MCEWIN, I., 1977. SOME ECONOMIC ISSUES INVOLVED IN THE MINING OF URANIUM, [BACKGROUND PAPER], THE CONSEQUENCES OF AUSTRALIAN URANIUM, LEGISLATIVE RESEARCH SERVICE, PARLIAMENT OF AUSTRALIA, CANBERRA, 26p.

Reviews world and Australian uranium resources, and assesses the role of Australian supply in meeting future demand. Concludes that, if all existing projects are allowed to proceed, Australian supply will account for a high proportion of uncommitted demand; in the author's view this indicates that simultaneous

development of all Australian projects would probably lead to a fall in prices, and that economic benefits to Australia might consequently be maximised if government enforced a sequential pattern of development. Analyses the likely economic impact of uranium mining given different prices and discount rates, examining the effect on national income, the balance of payments, employment, capital markets and other sectors of the economy. Concludes that uranium mining is likely to be highly profitable, and recommends use of a Resource Rent Tax to redistribute part of any 'windfall' gains.

546. MCMAHON, P., 1983. ECONOMICS OF AUSTRALIAN URANIUM MINING; ECONOMIC FACTORS RELATED TO AUSTRALIAN URANIUM MINING AND EXPORT, PREPARED IN THE OFFICE OF SENATOR RUTH COLEMAN, PERTH, 15p.

Attempts to show that Australia as a nation would not pay a high economic price if uranium mining ceased. In support of this claim argues that (1) Market prospects for Australian uranium are limited because of falling world demand and United States trade restrictions. (2) State and federal government revenue receipts from uranium mining are modest, while the federal government expends substantial sums on the industry. (3) The impact of uranium exports on the balance of payments will result in lower exports of other commodities or higher imports, leading to large net job losses. (4) A high proportion of company profits will flow to overseas owners of uranium projects. (5) Mining revenues received by Aborigines will not be 'particularly significant' when compared to federal government spending on Aboriginal affairs.

547. MELOUNEY, H.F., 1973. AUSTRALIAN URANIUM-SIGNIFICANT ENERGY SOURCE: CASE STUDIES OF A HYPOTHETICAL MINE AND MILL, IN SEMINAR: MINERAL PROCESSING IN AUSTRALIA, 29-31 AUGUST, 1973, CENTRE FOR CONTINUING EDUCATION, AUSTRALIAN NATIONAL UNIVERSITY, CANBERRA, 46p.

Reviews the historical development of nuclear power and of the Australian uranium industry, outlines the current world uranium supply and demand situation and the status of Australian uranium projects and reserves, describes the processes involved in the nuclear fuel cycle, and briefly comments on radiation hazards in the industry. Presents a detailed and comprehensive case study of the cost of bringing a hypothetical uranium mine and mill in outback Australia into production. Discusses the economic viability of reopening the Mary Kathleen uranium mine, and the future prospects for Australian uranium. Argues in

favour of an Australian conversion and enrichment plant on economic grounds.

548. MOVEMENT AGAINST URANIUM MINING, 1979. ECONOMIC IMPLICATIONS OF URANIUM MINING, MAUM, MELBOURNE, 4p.

Discusses the Fraser government's economic case for uranium mining, identifies some weaknesses in it, and claims the government is using selective economic arguments to mislead the public. Criticises government claims that the Ranger Inquiry findings indicate considerable enhancement of employment by a national uranium industry, and presents a hypothetical comparison of Ranger and a manufacturing industry which reveals that for the same investment the uranium industry creates considerably fewer jobs. Questions government claims that an appropriate share of uranium profits will go to the public sector and argues that government finance is being used to prop up the industry in its initial development stage. Argues that uranium demand and prices are falling due to a sharp downturn in the nuclear power industry, claims that the government has made a 'bad economic decision' by abandoning sequential development, and argues that multinational corporations involved in uranium are not concerned with the economic welfare of the countries in which they operate. Argues that although the NT economy would benefit proportionately more than would the national economy, the NT too would be vulnerable to the changing fortunes of the world market.

549. PURICH, P., 1978. THE BENEFITS OF URANIUM MINING TO THE NORTHERN TERRITORY OF AUSTRALIA, QUARRY MINE AND PIT, 17, 3, p4-9.

Details economic benefits which it is claimed will accrue to the Northern Territory as a result of the development of its uranium mining industry, and argues that these benefits will ease the financial burden of development towards statehood and help prepare the Territory for self-government.

Cross References

26, 46, 62, 86, 93, 119, 132, 150, 158, 159, 163, 167, 198, 234, 267, 272, 282, 283, 305, 347, 377, 555, 576, 609, 617, 703, 727, 732, 740, 742, 801, 842

Uranium Demand, Markets and Prices

550. ANON., 1976. JOH BJELKE-PETERSEN AND THE URANIUM SHEIKS, NATION REVIEW, 17-23 SEPTEMBER, pl185,1187.

Reviews United States investigations into an alleged uranium producers' 'club' involving, among others, Australian uranium mining interests. Explains why American conservationists, power utilities and the Westinghouse Corporation are pressuring for a public investigation. Reveals that a file of photocopied reports and correspondence in the Nation Review's possession provides evidence of links between Australian uranium producers and United States interests.

551. ANON., 1984. URANIUM MINING: TRADE BONANZA OR WHITE ELEPHANT? PLANET (DEAKIN UNIVERSITY), 8,7, pl2.

Argues that prospects for continued growth of the nuclear industry and for increased exports of Australian uranium are extremely bleak because (1) Energy demand is growing more slowly than in the past, and any additional demand can largely be accommodated by energy conservation (2) Escalating capital costs for nuclear power reactors and serious technical problems in their commissioning and operation are rendering nuclear power uncompetitive with other energy sources.

552. ALFORD, P., 1986. A BIGGER SLICE OF THE YELLOWCAKE?, AUSTRALIAN BUSINESS, 6, 24, p30, 32-33.

Discusses prospects for marketing Australia's uranium and for federal government approval of new uranium mines. Reviews the major world uranium producing countries and reports claims by Australian mining companies that government delays have allowed South Africa and Canada to take an even larger share of world markets and led to further exploration and discoveries in the Athabasca Basin of Saskatchewan.

553. BAMBRICK, S., 1980. AUSTRALIAN MINERAL COMMODITY MARKETING, RESOURCES POLICY, 6,12, pl66-178.

Deals with the Australian government's export controls over minerals and with the marketing of a range of individual commodities, including uranium. Outlines the uranium export policy announced by the Liberal/NCP government in June 1978, and the administrative procedures established for its implementation.

Assesses future demand for uranium which is seen as relatively weak until about 1990, but improving thereafter. Argues that in current market conditions uncontrolled high volume Australian production could further depress uranium markets.

554. BYRNE, J., 1975. BIG SLICE OF WORLD URANIUM MARKETS COULD BE AUSTRALIA'S, AUSTRALIAN FINANCIAL REVIEW, 8 OCTOBER, p8-9.

555. ENGLISH, D. AND DOHERTY, J., 1979. URANIUM PART 3: TO MARKET, TO MARKET, ADVERTISER, 25 APRIL, p4.

Claims that political stability and high grade ore make Australian uranium marketable, despite the downturn being experienced in the world nuclear industry. Assesses the economic benefits of uranium mining and export, reviews agreed and prospective export contracts, and discusses the three uranium mines given the go-ahead for production and federal involvement in the major mining companies. Mentions the role of the Uranium Advisory Council and the Uranium Export Office.

556. ERSKINE, D., 1983. GLOBAL URANIUM MARKETS ABOUND, WEEKEND AUSTRALIAN, 5-6 NOVEMBER, p19.

557. GRAY, E., 1982. THE GREAT URANIUM CARTEL, MCCLELLAND AND STEWART, TORONTO, 303p.

Details the background to and the establishment of an international uranium cartel in the early 1970s and discusses the companies, countries and personalities involved. Analyses the implications of the cartel for the international uranium market and the legal repercussions of the 'Mary Kathleen documents' disclosure, and briefly mentions the role played by Australian uranium producers in the cartel.

558. GREY, A.J., 1980. COMMERCIAL AND ECONOMIC ASPECTS OF URANIUM EXPORTS TO THE PACIFIC AREA, IN HARRIS, S. AND KEICHI, O. (EDS) AUSTRALIA AND JAPAN: NUCLEAR ENERGY ISSUES IN THE PACIFIC, AUSTRALIA-JAPAN ECONOMIC RELATIONS RESEARCH PROJECT, CANBERRA, p33-51.

Reviews trends in world energy supply, the international character of the uranium industry and factors influencing uranium demand, and draws some conclusions for the future of nuclear power. Considers a number of issues relevant to Australian uranium supply, including delays to mining operations and United States import restrictions, and outlines ways

in which the government of a uranium exporting country can intervene to support economic aims. Whilst conceding the importance of non-proliferation, proposes that safeguard measures should not interfere unduly with the stability of uranium supply. Reviews the existing non-proliferation regime and cites those principles which members of the uranium industry believe should govern the nature of controls over the export of uranium in order to deter its use for non-peaceful purposes. Reviews uranium supply projections, noting the INFCE's conclusion that reprocessing will be necessary to meet future demand.

559. GREY, A.J., 1980. INTERNATIONAL TRADE IN URANIUM, IN URANIUM INSTITUTE, LONDON (ED), URANIUM AND NUCLEAR ENERGY, MINING JOURNAL BOOKS LTD, LONDON, p258-267.

Argues that the optimal method of obtaining security of uranium supply is through the creation of an international climate of political and economic policies that allows market forces to govern uranium trade with a minimum of government interference. Reviews some of the main causes for uncertainty in uranium supply including delays in production due to native land rights, anti-nuclear ideology and environmental concerns; import restrictions; and government intervention in support of economic aims. Discusses the mechanisms of international trade in uranium and the effect of non-proliferation objectives. Lists a number of principles that the Uranium Institute believes should govern the nature of controls over the export of uranium in order to achieve the aim of preventing the diversion of uranium to non-peaceful purposes, and claims they also serve the economic purposes of governments. Reproduces the Institute's reservations (on economic grounds) about a nuclear fuel bank and suggests alternative approaches to the problem of security of supply.

560. GREY, A.J., 1980. URANIUM: THE CURRENT POSITION OF AUSTRALIAN URANIUM, MINERAL INDUSTRY QUARTERLY, NO.20, DECEMBER, p7-13.

Outlines reasons for the author's claim that there will be energy shortfalls in the next two decades which can only be filled by coal and nuclear power, that growth in electricity supply depends largely upon increasing availability of nuclear power (which is preferable to coal for technical and environmental reasons), and that the resultant expansion in nuclear capacity will increase world demand for uranium. Claims that Australia has both an opportunity and a responsibility

to supply the world's uranium demand, and argues that a drop in United States uranium production, the size, quality and low cost of its reserves, its political stability and reliability, and the opportunity for diversification of supply make Australia competitive in the world market. Warns that further delays will result in orders being lost to South Africa and Canada. Argues that future prospects for the industry depend not so much on market or technical factors but on the industry's relationship to Australia's political and social structure, and suggests changes which must occur in this relationship if Australia is to grasp the available opportunities.

561. HALLAM, J.R., 1979. WILL THE MINING COMPANIES BURN THEIR FINGERS ON URANIUM?, HABITAT AUSTRALIA, VOL. 7, DECEMBER, p19-23.

Highlights discrepancies between uranium demand forecasts by mining company executive Tony Grey and those of the AAEC, and suggests that there may not be a real demand for Australian uranium. Reviews the factors which influence the world demand for uranium including nuclear capacity, growth of the nuclear industry, stockpiles of uranium, tails assay and 'burnup'. Reviews the competition which Australian uranium exports can expect to face, marketing strategies and safeguards, and the Pacific market, and concludes that the survival of the world nuclear industry is in doubt and that consequently a demand for Australian uranium is by no means assured.

562. HALLEM, J., AND THIEDEMAN, M., 1987. THE FUTURE OF AUSTRALIAN URANIUM EXPORTS, GREENPEACE, SYDNEY, NOVEMBER, 23p.

Critically addresses arguments in favour of expanding Australia's uranium industry beyond the three mines currently in production which assume a substantial growth in uranium demand by the French and world nuclear industries. Assesses the status of the French nuclear industry, and argues that it is unlikely to expand substantially by 2000 or 2010, and may even contract, due to over-supply of electricity generating capacity and financial problems faced by Electricite de France. Uses official statistics and quotes from French authorities to support this argument. States that Australia will face tough competition for the available French uranium market from producers in France itself and in Canada and Africa. Outlines legal proceedings arising from attempts by United States uranium producers to have protectionist measures

introduced against uranium imports, measures which would close the United States market to Australian uranium and leave Australia to compete with other producers, especially Canada, for the remainder of the world market. Assesses Canada's position as a uranium supplier and argues that Canadian producers will attempt to push Australia out of world uranium markets by increasing output and forcing down prices. Contends that in the light of these arguments it is premature for Australia to view the uranium market in anything but the most cautious terms.

563. HAMM, H., 1977. WEST GERMANY'S VIEW ON AUSTRALIA AND ITS URANIUM, NEWS DIGEST INTERNATIONAL, NO. 3, SEPTEMBER, p7-8.

Reports that West Germany has indicated a wish to reactivate ties with Australasia, due to Soviet interest in the South Pacific area, and a keenness to diversify existing sources of uranium to include Australia. Reports that Australian Prime Minister Fraser attempted to secure less restrictive EEC import policies in respect of Australian agricultural produce during uranium negotiations between the two countries.

564. HARDY, C.J. AND SILVER, J.M. (EDS), 1985. NUCLEAR POWER AND THE NUCLEAR FUEL CYCLE, STATUS REPORT 1985, AUSTRALIAN ATOMIC ENERGY COMMISSION, [SYDNEY], 36p.

Presents assessments of the status of and prospects for nuclear power and the nuclear fuel cycle, which include the following topics: the place of nuclear power; world nuclear power status; review of nuclear power by country; nuclear reactor developments; economics of nuclear power; nuclear power projections; uranium resources, production and requirements; uranium conversion, enrichment and fuel fabrication; spent fuel treatment and radioactive waste management; status of nuclear fusion. Provides a glossary of organisations involved in the nuclear fuel cycle.

565. HASELHURST, D., 1983. AUSTRALIA: URANIUM GIANT LIMPS ON EXPORT FRONT, BULLETIN, 11 OCTOBER, p130-132.

566. HASELHURST, D., 1984. A LITTLE RAY OF HOPE FOR URANIUM MINERS, BULLETIN, 17 APRIL, p102-104.

Points to the paradox that unless delegates to the July ALP National Conference relax their anti-uranium stand, the fortunes of South Africa (the bete noire of the left) will be enhanced. Article includes comments from

Hugh Morgan (Western Mining) that the Olympic Dam project could win forward export contracts if allowed into the market, a view endorsed for their companies by Bernard Fisk (ERA) and Tony Grey (Pancontinental). Spot prices for uranium are down from a 1979 high of \$US43/lb to \$US17/lb and although demand (and therefore price) is expected to pick up, Australian suppliers will face competition from newly established South African and Canadian mines.

567. HAYES, J.E. AND SLIZYS, R.A., 1972. CONSIDERATIONS AFFECTING NUCLEAR FUEL INDUSTRY PLANNING FOR AUSTRALIA, IN INSTITUTION OF ENGINEERS, AUSTRALIA, ANNUAL ENGINEERING CONFERENCE VOLUME OF PREPRINTS, CANBERRA, p99-103.

Predicts that in the 1980s nuclear power will become a major source of electrical energy in many industrialised countries and will grow in importance in Australia in the longer term. Reviews the likely growth of domestic and export demand for Australian nuclear fuel materials and services, and concludes that by 1980 Australia will be exporting sufficient quantities of uranium to justify establishment of domestic conversion facilities and that, while Australia appears to possess many of the advantages required for location of a major enrichment plant, careful evaluation will be required to establish whether such a plant would provide a satisfactory return on the resources involved.

568. JAMES, C., 1975. THE BIG NUCLEAR POWER RETHINK, BULLETIN, 6 DECEMBER, p59-60.

569. KAVANAGH, J., 1986. MINERS TAKE STOCK AFTER CHERNOBYL, BUSINESS REVIEW WEEKLY, 30 MAY, p38, 42.

Analyses the implications of the Chernobyl disaster for Australia's uranium market prospects. Briefly reviews recent uranium price history, emphasising that a significant downturn in anticipated demand had occurred prior to Chernobyl. Examines the current marketing arrangements for Nabarlek, Ranger and Roxby Downs, and analyses the likely impact of Chernobyl on major uranium-consuming countries. Quotes a number of industry sources which claim that Chernobyl is unlikely to have any immediate effect because major consumers are already committed to nuclear power, and that in the longer term rising electricity demand will provide support for uranium markets.

570. KEMENY, L.G., 1983. AUSTRALIA MUST GRAB ITS BIT OF URANIUM 'CAKE', BULLETIN, 15 NOVEMBER, p32-34.

571. KEMENY, L.G., 1983. IS THERE A MARKET FOR AUSTRALIAN URANIUM? CANBERRA TIMES, 31 AUGUST, p19.

Argues that there is a market for Australian uranium, based upon an observed upward movement in worldwide industrial growth; the imminence of large numbers of United States nuclear power station connections; increasing nuclear capacity of existing Australian uranium customers; and demand from the Third World. Claims Australia has no moral right to withhold uranium supplies from an energy hungry world, calls for government action to back the investment of mining companies and cites eminent scientist, Sir Mark Oliphant, in support of the argument that withholding Australian uranium makes no difference to nuclear proliferation. Reviews the nuclear power industries of major industrialised nations.

572. KIRKWOOD, D., 1982. URANIUM SHORTFALL SEEN IN 1990'S, AUSTRALIAN, 8 NOVEMBER, p10.

573. KORPORAAL, G., 1985. AUST EXPORTS OF URANIUM TO US UNDER PRESSURE, AUSTRALIAN FINANCIAL REVIEW, 25 JULY, p9.

574. LIVINGSTONE, R.S., 1982. CAN MARKET STABILITY BE IMPROVED - GOVERNMENT AND EXPORT CONTRACT APPROVALS, IN URANIUM INSTITUTE, LONDON (ED), URANIUM AND NUCLEAR ENERGY, BUTTERWORTHS, LONDON, p224-233.

Discusses the state of world uranium markets, arguing that current spot market prices, which consumers are increasingly attempting to use as the basis for contract sales, are inadequate to ensure long-term supplies of uranium. Outlines the uranium policy initiatives of the Australian government, their relationship to the objective of market stability, and indicates the organisation of the market which, in the government's view, would best serve the long-term interests of both producers and consumers. Provides details on Australia's major uranium deposits and discusses the rationale for the establishment of a government floor price for exports of Australian uranium.

575. LLOYD, B., 1978. AN AUSTRALIAN VIEW OF THE URANIUM MARKET, IN SPRIGGS, M.J., AND CASTEEL, K.D. (EDS) URANIUM SUPPLY AND DEMAND, URANIUM INSTITUTE, LONDON, p76-84.

Comments on the commercial realities and uncertainties at present affecting the uranium supply industry. Deals with the subject under three headings: the

Fraser government's recently-announced uranium marketing policy, commercial relationships between buyer and seller, and the problems and uncertainties facing the mining industry in considering future development. Summarises the steps involved in the government's new marketing policy. Outlines the extent and value of Australia's uranium reserves, but warns that future developments will be determined by political issues rather than commercial realities. Identifies government involvement in commercial activities and in supply and demand as underlying the uranium market's instability and as problems of great concern to the mining industry. Makes some predictions about future developments in the uranium supply industry. An appendix contains the text of a Ministerial Statement on uranium export policy by J.D. Anthony (Deputy Prime Minister and Minister for Trade and Resources).

576. MACKAY, G.A., 1978. URANIUM MINING IN AUSTRALIA, IN WOODCOCK, J.T. (ED), INTERNATIONAL RESOURCE MANAGEMENT, AUS.I.M.M., CANBERRA, p55-67.

Reviews predictions of future electricity demand and available energy sources, and argues that nuclear power is the only viable alternative to fossil fuels to fill an unexpected energy gap for electricity generation. Reviews factors which influence the demand for uranium, and argues that the market for Australian uranium will strengthen from 1990 and that exploration activities should be expanded to cover expected shortfalls in supplies. Reviews the history of the Australian uranium industry, examines potential markets for Australian uranium and concludes that the market will play a major role in determining the development of Australian deposits. Argues that the economic benefits of exporting uranium will be substantial in terms of export earnings, employment opportunities and development of the Northern Territory. Claims that Australia has a moral obligation to ensure a long term supply of uranium to energy deficient nations.

577. MYHRA, S., 1979. THREE MILE ISLAND AND IMPLICATIONS FOR AUSTRALIAN URANIUM MINING, SEARCH, 10, 10, p350-355.

Reviews the Three Mile Island reactor accident and its effect on the nuclear power industry. Contrasts figures for existing and planned nuclear power plants with actual and projected supply of yellowcake, and argues that a substantial market for Australian uranium is unlikely to materialise before 1990.

578. O'FAIRCHEALLAIGH, C. 1987. FUTURE MARKETS FOR KAKADU URANIUM, AUS.I.M.M. BULLETIN, 292, 4, p28-33.

Develops a detailed supply/demand balance for newly-mined uranium during 1990-95, and gives a brief and more general outline of likely developments during 1996-2000. Concludes that if planned additional capacity is installed at Roxby Downs and the existing Ranger mine, major new uranium projects in Kakadu will find it extremely difficult to compete effectively and achieve a 'reasonable' return on capital in the period up to 1995. At this stage, the prospects for 1996-2000 appear considerably brighter, though greater uncertainty exists regarding likely market developments in this later period.

579. OWEN, A.D., 1983. THE ECONOMICS OF URANIUM DEMAND, RESOURCES POLICY, 9,2, p110-121.

Identifies the major characteristics of the demand for uranium, discusses a number of factors which determine the actual level of the nuclear power industry's requirements, and explains the high level of inventories which currently characterise the market. Calculates relative levels of inventories by comparing projections of uranium production and apparent consumption, and assesses their likely impact on the uranium market during the 1980s.

580. OWEN, A.D., 1983. THE MARKET FOR AUSTRALIAN URANIUM, AUSTRALIAN QUARTERLY, AUTUMN, p4-18.

Having briefly outlined the history of uranium markets and prices and indicated the current status and estimated reserves of Australia's major uranium projects, the author examines the likely supply-demand situation for uranium over the period to 1990, using data from the OECD/IAEA, Nuexco, and the Uranium Institute. In assessing future demand, stress is placed on the substantial downward revision of uranium requirements which occurred in the late 1970s and early 1980s, and on the large size of uranium stocks. It is argued that the United States market is unlikely to offer substantial opportunities to Australian producers during the 1980s; in general, the market outlook is not viewed very favourably, and the author concludes that at least until 1990 the available opportunities would probably only support one of the large Australian projects being considered.

581. RIVKIN AND COMPANY, 1976. PROSPECTS FOR THE URANIUM INDUSTRY IN AUSTRALIA, RIVKIN AND COMPANY, SYDNEY, 60p.

Presents an outline of the world uranium scene, including a review of the supply and demand situation, trends in uranium prices, and what the authors believe to be a movement towards nuclear power as the world's primary source of electrical energy. Briefly outlines technical aspects of the nuclear industry, and discusses political and economic reasons for its importance. Provides an evaluation of individual prospective uranium producers in Australia for potential investors.

582. SANDEMAN, J., 1981. URANIUM CASE HEADS FOR FAR-FROM-HAPPY ENDING, NATIONAL TIMES, 25-31 JANUARY, p5.

583. SHEEHAN, P., 1983. US GOES COLD ON YELLOWCAKE, SYDNEY MORNING HERALD, 28 APRIL, p7.

584. SHIRVINGTON, P.J., 1982. THE MARKETING OF URANIUM, AUSTRALIAN FOREIGN AFFAIRS RECORD, APRIL, p160-164.

Reviews the issues involved in uranium marketing. Discusses the economic advantage to uranium producers of sales contracts negotiated during the late 1970s at a time of perceived world energy shortage, low uranium production and high uranium prices. Stresses the importance to Australia of continuing to increase its share of the world market through low cost expansion of existing operations, and of reinforcing its position as a credible supplier by increasing sales to consumer nations keen to diversify their sources of uranium towards established low cost producers in economically and politically stable countries. Briefly outlines the supply potential of existing and planned Australian uranium mines. Assesses the world supply/demand situation for uranium and explains why production is presently outstripping the nuclear power industry's demand.

585. UREN, D., 1985. ERA CAUGHT IN BUYER'S MARKET, AUSTRALIAN, 19 AUGUST, p15.

Reports that uranium contracts recently signed by ERA include 'escape' clauses which allow customers to avoid their contractual obligations if contract prices are substantially above those on the spot market, and that ERA's earlier contracts have been changed from a 'fixed price' basis to 'flexible' pricing related to market

developments. Argues that this situation reflects the weak state of world uranium markets and is indicative of a long-term trend for contract prices to relate more closely to those on the spot market. Claims that in view of this trend the Australian government minimum export price will not provide an adequate basis for negotiation of fresh contracts.

586. VENTURINI, V.G., 1982, PARTNERS IN ECOCIDE, AUSTRALIA'S COMPLICITY IN THE URANIUM CARTEL, RIGMAROLE BOOKS, MELBOURNE, 244p.

Provides a detailed, comprehensive and extensively-documented analysis of Australia's role in the uranium cartel which allegedly engaged in rationing of uranium markets, production restraint, price discrimination and price setting in order to raise prices over the period 1972-1976. The cartel's existence came to light as a result of the theft of documents from Mary Kathleen Uranium Ltd in 1976; Venturini utilises information from these documents and from United States House of Representatives Hearings into the cartel and from United States court proceedings initiated against the cartel members by Westinghouse, a United States uranium trading and nuclear plant manufacturing corporation. [Westinghouse had incurred substantial financial losses as a result of having to meet its uranium supply contracts with material purchased at prices far above those it had negotiated earlier with the power utilities.] Discusses how the cartel was organised and how it operated, and provides a detailed description of the court proceedings and of the actions taken in response by the uranium mining companies and by the governments of countries in which they operated. Analyses the role played by Australian bureaucrats and politicians both in facilitating the establishment and operation of the cartel and in attempting to defend the Australian-based companies against litigation. Concludes that the Australian government was not, as it claimed, acting in the national interest by trying to prevent the United States from extending its legal jurisdiction into Australia and to ensure the ability of Australian resource companies to engage in 'orderly' marketing of their output, but rather that it was defending the interests of the multinational corporations which dominate the uranium industry.

587. VENTURINI, V.G., 1983. URANIUM; A FOREIGN RESOURCE NL, 53RD ANZAAS CONGRESS, 16-20 MAY 1983, PERTH, 52p.
588. WESTFIELD, M., 1982. FRESH BID FOR CONTRACTS, AUSTRALIAN BUSINESS, 11 NOVEMBER, p21-22.

589. WILSON, P., 1987. DIMMING NUCLEAR POWER NEEDS, ADVERTISER, 18 MARCH, p19.

States that Japan has drastically cut estimates of how much nuclear energy it will use at the start of the 21st century. During a May 1986 visit to Tokyo Prime Minister Hawke requested that Japan buy more Australian uranium and lift Australia's share of the Japanese market from 13 to 30 per cent; the author argues that in view of the lower demand projections and Japan's determination to avoid over-reliance on a single supplier, Mr Hawke's request was 'hopeful almost to the point of fantasy'.

590. WOOLFORD, D., 1983. EUROPE WILL WANT URANIUM DESPITE UNCERTAINTIES, SYDNEY MORNING HERALD, 29 APRIL.

Discusses Australian uranium contracts with European nations, reviews growth in EEC nuclear capacity and discusses European government and community reaction to nuclear power and the implications for Australian contracts. Reports on British interest in Jabiluka uranium despite renewed anti-nuclear feeling, and on the 'thriving' French nuclear industry and its suppliers, and reviews certain other European nations' nuclear plans and problems. Discusses the financial effects anti-nuclear demonstrators have on nuclear power programs.

591. WRIGHT, W.J.K., 1972. THE ENRICHMENT OF URANIUM, ATOMIC ENERGY IN AUSTRALIA, 15, 1, JANUARY, p2-8.

Presents background information on demand for nuclear fuel and Australian interests in the nuclear fuel industry, and a description and comparison of methods of uranium enrichment. Claims that construction of an enrichment plant in Australia would tend to stabilise the marketing of uranium and to increase the overall level of sales, thus increasing overseas earnings, stimulating industrial development, and favourably influencing political and trade relationships internationally.

Cross References

3, 39, 42, 46, 49, 112, 132, 158, 173, 182, 187, 189, 225, 235, 243, 388, 414, 530, 540, 541, 545, 546, 547, 548, 785, 789, 807, 819

PART SIX

PROCESSING AND USE OF URANIUM IN AUSTRALIA

Nuclear Power Generation

592. ANON., 1981. POWER STATION PLANS INADEQUATE: NUCLEAR POWER NEEDED TO MEET ALUMINIUM INDUSTRY DEMANDS, ENERGY (CANBERRA), 9, 7, pl-4.
593. ALDER, K.F., ET AL, 1977. LONG TERM NUCLEAR PROGRAMME FOR AUSTRALIA, IN REPORT OF THE TASK FORCE ON ENERGY OF THE INSTITUTION OF ENGINEERS, AUSTRALIA, CONFERENCE ON ENERGY, CANBERRA, 20-22 JULY, p84-111.

Presents an overview of nuclear power, reviews the nuclear policy and programmes of various countries, and outlines the processes involved in mining, milling and enriching uranium and in the management of nuclear waste. Assesses Australia's potential domestic use of nuclear energy, and the implications for the Commonwealth, the states and power utilities of proceeding with development of nuclear power. Suggests proposals for national planning and coordination of nuclear power industry safeguards and environmental protection measures, and reviews issues involved in regulation and licensing of a nuclear industry. Discusses the current status of fusion technology. Considers the implications of an Australian nuclear industry for employment of engineers and other categories of labour.

594. BIRNBAUER, B., 1985. SEC HAS DETAILED PLANS FOR NUCLEAR POWER, POLITICAL REJECTION DID NOT STOP PUBLIC SERVANT ENTHUSIASM, AGE, 15 APRIL, pl, 7; 16 APRIL, p3, 10.

These two articles provide a detailed discussion of the Victorian State Electricity Commission (SEC) plans for nuclear power development over the period since 1976, stressing the secrecy which has surrounded much of its activity in this area. The first article summarises a Commission report on possible nuclear plant sites in Victoria, the second alleges that despite Victorian State government bans on development of a nuclear industry, senior public servants have maintained secret interest in developing a uranium enrichment plant.

595. BROTHERTON, P., 1982. THE RISE AND FALL OF NUCLEAR POWER: A CASE STUDY OF CONTEMPORARY ENERGY POLICY IN WA, DISCUSSION PAPER NO. 3/82, ISSUES IN ENERGY POLICY IN WESTERN AUSTRALIA, MURDOCH UNIVERSITY, PERTH, 35p.

Briefly reviews proposals for construction of nuclear power stations by Commonwealth and state governments, and provides a detailed analysis of the Western Australian government's policy on nuclear power over the period 1972-82. In this analysis the author stresses the impact on policy of Sir Charles Court's personal commitment to nuclear power, and demonstrates how this was eventually negated because of its incompatibility with energy demand forecasts for Western Australia and by the growth of public opposition to nuclear energy. The author argues that energy policy formulation in Western Australia suffered as a result of Court's personal commitment to nuclear power, and calls for a more open policy process involving a wide range of expert opinion and greater public participation.

596. BUTLER, D., 1981. NUCLEAR AUSTRALIA, ECONOMIC NEWS BULLETIN, NO. 1057, 9 FEBRUARY, p11.

Reviews possible schemes for utilisation of nuclear power in Australia including the proposed Jervis Bay reactor, enrichment facilities at Lucas Heights, and nuclear weapons for Australia's defence forces. Outlines the advantages of the CANDU type of reactor for use in Australia.

597. CAMILLERI, J., 1981. THE NUCLEAR JUGGERNAUT: AILING BUT DANGEROUS, LEARNING EXCHANGE, NO. 106, NOVEMBER, p10-11.

Outlines a number of recent developments which, in the author's view, reinforce the case against development of a nuclear industry in Australia, including the collapse of world uranium markets, proliferation of nuclear arms and the effective dismantling of Australia's uranium export safeguards. Critically reviews plans to establish nuclear power stations in Victoria as part of an economic development strategy based on energy-intensive projects dominated by multinational corporations. Calls for a nuclear free Victoria in the context of alternative energy policies and alternative economic development strategies.

598. DAVIS, I., 1981. CANBERRA UNLOCKS THE NUCLEAR DOOR, AGE, 9 JULY, p13.

Reports on the Fraser government's stated intention of speeding up nuclear power development in Australia and transferring the responsibility for regulation and control of nuclear activities to the state and territory governments. States that these governments face less restrictions in proceeding with nuclear development than the Commonwealth, and notes the interest indicated by several premiers in development of nuclear power stations and/or enrichment facilities, especially those whose states lack coal reserves. Suggests that Australia, faced by declining world uranium markets, has two choices; to export uranium in enriched form, or to use it for domestic power production. Notes opposition of the ALP to nuclear power in Australia and a statement by the Victorian premier that his state had no plans to introduce nuclear power.

599. FALK, J., 1981. THE POLITICAL ECONOMY OF THE NUCLEAR INDUSTRY, JOURNAL OF AUSTRALIAN POLITICAL ECONOMY, 10, JUNE, p47-62.

Examines the prospects for the future of the Australian nuclear debate, and the effects of the changing international context in which that debate will occur. Identifies a decline in expectations of world nuclear capacity and discusses possible causes and implications for the nuclear industry. Argues that since the fate of the nuclear industry depends on the outcome of political debate, rather than just market forces, assumptions about its demise are premature; however it has already been severely restrained and may be more so in future, with the end of the non-communist nuclear industry a very real possibility provided that nuclear opposition intensifies and consolidates. Reviews the anti-nuclear and anti-uranium campaigns of the 1970s, claims they not only effectively restricted the power of the AAEC and delayed the onset and extent of mining and export of Australian uranium but also contributed to the worldwide nuclear slump. Speculates that the nuclear industry's decline may increase pressure for development of nuclear power stations in Australia, that cheap (coal-fired) electricity and uranium may make Australia appear a desirable location for enrichment facilities, and that increased demand for coal would deplete those reserves which are economically recoverable and convertible without environmental consequences. Briefly reviews enrichment and waste disposal proposals, and reviews the progress of plans for nuclear power in certain states. Reviews

trade union action against uranium, reports the findings of opinion polls, and believes they indicate potentially strong opposition to local nuclear projects.

600. MARTIN, B., 1982. NUCLEAR POWER AND THE WESTERN AUSTRALIAN ELECTRICITY GRID, SEARCH, 13, 5-6, p132-136.

A mathematical model is used to show that the potential economic value of a nuclear-powered electricity generating unit in Western Australia is seriously limited by the small size of the electricity grid.

601. SUTTON, P., 1980. VICTORIA'S NUCLEAR COUNTDOWN: STATE GOVERNMENT PLANS FOR A NUCLEAR VICTORIA, ENVIRONMENT ACTION CENTRE, MELBOURNE, CHAPTER - THE EVOLUTION OF THE GOVERNMENT'S NUCLEAR POLICY, p12-25.

Reviews the evolution of Victoria's power industry, noting references to nuclear power. The author implies that the state government and electricity commission are not ruling out nuclear energy, though it has been played down in public due to anti-nuclear feeling in the community.

Cross References

154, 567, 612

Uranium Enrichment and Processing

602. ANON., 1981. ENRICHMENT STUDY GETS GO-AHEAD, ENERGY, (SYDNEY), 9, 6, p10-11.
603. ALDER, K.F. AND MILES, G.L., 1972. THE ENRICHMENT OF URANIUM, IN PEASLEE, D.C. (ED), SYMPOSIUM PAPERS ON THE ROLE OF NUCLEAR ENERGY IN AUSTRALIA'S DEVELOPMENT, SOCIETY FOR SOCIAL RESPONSIBILITY IN SCIENCE, CANBERRA, p5.1-5.26.

Most of the chapter discusses uranium enrichment from a global perspective; pages 5.10-5.11 relate to the Australian position. Claims that countries concerned about security of supply of enriched uranium view Australia as a favourable location for future large-scale uranium enrichment using the gas diffusion process, due to its possession of large energy resources and low-cost power, suitable sites, and large uranium resources available for export, and to its political and economic stability. Considers potential economic benefits to Australia from enrichment and the timing and scale of a domestic uranium enrichment industry.

604. ALFREDSON, P.G., 1969. THE PRODUCTION OF NUCLEAR GRADE URANIUM DIOXIDE FROM AUSTRALIAN ORES, AAEC RESEARCH ESTABLISHMENT, LUCAS HEIGHTS, SYDNEY, 11p.

Outlines a proposed research and development programme into the production of nuclear grade uranium dioxide powders from Australian ores to be conducted at Lucas Heights by the AAEC, and claims that the establishment of the technology required for production of nuclear grade, sinterable uranium dioxide should result from this research programme.

605. BAXTER, P., 1977. URANIUM ENRICHMENT IN AUSTRALIA, INSTITUTION OF MECHANICAL ENGINEERS, AUSTRALIAN BRANCH, NEWS BULLETIN, NO. 65, NOVEMBER, p2-5.

Outlines gas diffusion, gas centrifuge and other enrichment processes and considers factors influential in any decision to establish uranium enrichment in Australia; these include the rate of expansion of the western world's nuclear capacity, the types of reactors used, and developments in reprocessing and breeder technologies. Suggests three possibilities for Australia: sell yellowcake rather than enrich; enrich some uranium through joint international ventures; enrich some uranium through Australian technology.

Briefly outlines how the third possibility could materialise and argues the advantages of a domestic enrichment plant.

606. CARRICK, J., 1982. PRE-FEASIBILITY STUDY FOR ESTABLISHMENT OF A URANIUM ENRICHMENT INDUSTRY IN AUSTRALIA, AUSTRALIAN FOREIGN AFFAIRS RECORD, APRIL, p226-231.

Text of a statement to parliament (28 April 1982) by Sir John Carrick, Minister for National Development and Energy, on enrichment feasibility studies. Contains a background paper on United States research and development program in laser isotope separation technology for plutonium designed to demonstrate that Australian uranium supplied to the United States is not diverted to military purposes, and presents an outline of the Australian government's refutation of suggestions that 'civil' plutonium (from Australian uranium) might be used for United States nuclear weapons.

607. DOYLE, B. AND PEARSON, O., 1982. ENRICHMENT - THE NEXT STEP?, CHAIN REACTION, NO. 27, AUTUMN, p15-17.

Discusses the economic viability of an Australian uranium enrichment industry and reviews proposals by French, Japanese, United States and European nuclear corporations to establish enrichment plants in Australia. Argues that an enrichment plant would firmly and inextricably entrench Australia in the world nuclear industry and reduce the strictness of safeguards demanded for Australian uranium at a time of falling nuclear demand.

608. ESTER, H., 1981. THE YELLOWCAKE DEBATE, FAR EASTERN ECONOMIC REVIEW, 13 FEBRUARY, p45-46.

609. FITZGIBBONS, A., 1982. WHY A URANIUM PLANT HERE DOES NOT MAKE SENSE, NATIONAL TIMES, 17-23 JANUARY, p42.

Argues that the proposal to establish uranium enrichment facilities in Australia is fundamentally unsound in economic terms, because of excess enrichment capacity in the world market, much of it government subsidised, and because of problems of scale and technological difficulties likely to be associated with an Australian plant. To be internationally competitive enrichment would have to be subsidised by the uranium mining industry, with part of the cost probably being borne by the Commonwealth as a result of tax concessions designed to ease the burden on the companies. This cost cannot be justified given that enrichment would generate little employment directly

and would use mainly imported capital goods and technology.

610. GEORGE, D.W., 1981. THE CASE FOR ENRICHMENT OF URANIUM IN AUSTRALIA, 51ST ANZAAS CONGRESS, 11 MAY 1981, BRISBANE, 28p, mf.

Provides background information on construction and operation of nuclear power stations, the use of uranium in these stations, uranium isotopes and the use of enriched uranium, the place of enrichment in the nuclear fuel cycle, and how uranium can be enriched. Considers the case for uranium enrichment in Australia discussing the need for additional capacity, added value, potential profitability, increased employment and industrial opportunities, retention of depleted uranium and environmental issues. Reviews the status of enrichment feasibility studies in Australia. Expresses the belief that there is a good case for the domestic enrichment of Australian uranium and that this would be to the benefit of all Australians.

611. LAMPE, A., 1980. URANIUM ENRICHMENT TEAM, AUSTRALIAN FINANCIAL REVIEW, 8 FEBRUARY, p16.

Previews an Australian visit by a European uranium enrichment consortium, Eurodif, to promote its gas diffusion enrichment technology. Reviews the terms of Eurodif's proposed bilateral agreement and reports Eurodif's claims regarding the advantages of the gas diffusion technology for peaceful nuclear power use and its success in France. Notes the interest of the Uranium Enrichment Group of Australia (UEGA) in an alternative enrichment technology, centrifuge, being developed by Eurodif's European competitors, Urenco, and Australia's option to wait for the development of chemical exchange enrichment technology.

612. LIDDY, J.C., 1975. URANIUM ENRICHMENT: WHAT IT MEANS AND WHAT IS INVOLVED, AUSTRALIAN MINING, MAY, p13-17.

Explains the nuclear fission process and argues in favour of an Australian nuclear reactor using domestically enriched Australian uranium. Details various enrichment processes and argues the case for enrichment facilities in Australia on economic grounds.

613. MARKS, A.P., 1981. PROSPECTS FOR A URANIUM ENRICHMENT INDUSTRY IN AUSTRALIA, ERT ENERGY NEWS JOURNAL, 3, 9, [SUPPLEMENT] p2-4.

Argues in favour of uranium enrichment in Australia. Describes what is meant by enrichment and outlines

characteristics of the uranium enrichment industry. Considers the Australian situation relating to enrichment, providing a brief review of AAEC enrichment research projects and of feasibility studies by the UEGA. Claims that an Australian enrichment industry would benefit the Australian economy and argues that, since increasing amounts of Australian uranium are being exported, Australia should enrich its uranium if it proves to be commercially attractive.

614. OWEN, A.D., 1983. THE ECONOMICS OF URANIUM ENRICHMENT, PROMETHEUS, 1,1, p5-22.

Identifies a number of factors which determine the demand for uranium enrichment services, discusses projections of enrichment capacity and requirements to the year 2000, considers prospects for the establishment of an Australian enrichment supply industry during the 1990s, and concludes that those prospects are limited by the depressed state of the world market and lack of a domestic market.

615. ROBERTS, A., 1981. ENRICHING URANIUM - OR IMPOVERISHING THE TAXPAYER?, ERT ENERGY NEWS JOURNAL, 3, 9, p4, 9.

Argues against uranium enrichment in Australia. Expresses doubts about the accuracy/validity of AAEC estimates of demand for Australian enriched uranium which form the basis of the pro-enrichment argument, and warns that the cost of an Australian enrichment industry, although proposed as a private enterprise, would inevitably be borne by the Australian taxpayer.

616. SILVER, J.M. AND RICHMOND, M.R., 1972. THE MARKET FOR AUSTRALIAN CONVERSION SERVICES, IN AAEC SYMPOSIUM ON URANIUM PROCESSING, LUCAS HEIGHTS, 20-21 JULY 1972, CHAPTER 10, 15p.

Argues that current and foreseeable nuclear power and enrichment technologies dictate a continuing need for uranium oxide concentrate and its conversion to uraniumhexafluoride (UF₆). Describes the variables affecting the growth of this need on a world scale, and analyses the current and expected UF₆ conversion industry. Establishes world requirements for U3O₈ and UF₆ and reviews the major variables which affect the estimates: proportion of world demand for electrical energy supplied by nuclear power; types of nuclear reactors adopted; 'tails' concentration of enrichment plants; and the rate and mode of plutonium utilisation

in thermal reactors. Assesses the market penetration that an Australian conversion plant could obtain in competition with overseas plants, and argues that it is strongly dependent on alternative market suppliers, Australia's past trading performance, the relative production economics of UF₆, and Australia's future position regarding both U308 and enriched uranium production. Presents estimates of total potential market for UF₆ for 1975, 1980 and 1985; possible market penetration by an Australian conversion plant for 1980 and 1985; predictions of increased sales due to establishment of an Australian enrichment plant; and the suggested minimum size of plant in terms of annual production.

617. SOUTH AUSTRALIA, DEPARTMENT OF ECONOMIC DEVELOPMENT, 1977. THIRD INTERIM REPORT OF THE URANIUM ENRICHMENT COMMITTEE, DEPARTMENT OF ECONOMIC DEVELOPMENT, ADELAIDE, AUGUST, VARIOUS PAGINGS.

Presents a development plan for a uranium enrichment centre in South Australia, for examination by potential private enterprise participants and the Commonwealth government. The plan requires an expanded uranium mining industry, establishment of two uranium conversion plants, acquisition of enrichment technology from URENCO-CENTEC, and a modular development programme for the enrichment plant comprising five stages, each requiring a capital investment of \$200 million. Total costs would be \$1,450 million (1977 dollars), spread over an eight-year period. Brief individual chapters (3 to 5 pages) review the role of nuclear power in dealing with the world energy crisis, forecast future world uranium, conversion and enrichment requirements, outline current marketing arrangements for Australian uranium, and discuss development of the proposed enrichment project. A longer chapter (21p) analyses expected financial returns from the project under a range of assumptions regarding project funding, concluding that it is 'most attractive' in financial terms. The bulk of the report consists of an Interim Environmental Report on Uranium Enrichment prepared by the South Australian Department of Mines and AMDEL. Individual chapters provide very detailed descriptions of conversion and enrichment plants and discussions of the way in which they can impact on the environment and of environmental monitoring systems; discuss construction of a plant to manufacture rotors for the enrichment plant and provision of services for the complex; assess alternative subsystems; review site considerations for conversion and enrichment plants; and analyse in detail (70p) the environmental effects of the proposed conversion/enrichment centre. Also

includes statistical appendices, flow-charts of the various processes employed in conversion and enrichment, and guidelines by the South Australian Department of the Environment for environmental impact statements on the conversion and enrichment plants.

618. SOUTH AUSTRALIA, PREMIER'S DEPARTMENT, TRADE AND DEVELOPMENT DIVISION, 1976. SECOND INTERIM REPORT OF THE URANIUM ENRICHMENT COMMITTEE, PREMIER'S DEPARTMENT, ADELAIDE, 75p.

Deals with the possibility of establishing a uranium processing centre at Redcliffe in South Australia. Lists the report's conclusions, and the attractions of the Redcliffe site. Reviews world uranium markets and claims that Australia, mining company shareholders and the labour market in South Australia will stand to gain by supplying enriched Australian uranium to world markets. Discusses procedures involved in hexafluoride production, outlines the principal methods of uranium enrichment, and claims that no environmental problems will occur as a result of an enrichment plant at Redcliffe. Discusses employment issues relating to urban planning, and infrastructure costs, and presents an economic analysis of the project (predicted costs, finance, revenue). Recommends that a uranium processing centre be established at Redcliffe; that the plant be gradually expanded in line with world markets and yellowcake supply; that the project be established by the Commonwealth with full state support and participation; that Australian uranium should be exported in enriched form only; that current uranium export contracts be made subject to refining and enrichment in Australia; and that the project be 'debt financed' by the purchasers of Australian uranium.

619. SYMONDS, M., 1971. URANIUM ENRICHMENT. CENTRIFUGE OR DIFFUSION PLANT - WHICH WILL AUSTRALIA CHOOSE?, MODERN WORLD, VOL. 1, JUNE, p34-35.

Refers to European collaboration on centrifuge development and the British offer to sell Australia a centrifuge plant, considers the need for enrichment plants in the fuel cycle, explains how gas diffusion and the latest technology (centrifuge enrichment) work, and examines their relative merits.

620. TUXWORTH, I., 1982. URANIUM ENRICHMENT NEEDED FOR TERRITORY, NORTHERN TERRITORY NEWS, 29 OCTOBER, p3.

Text of a speech by Northern Territory Minister for Mines and Energy, Ian Tuxworth. Recounts the course of action adopted by Chief Minister Everingham and

Tuxworth on being informed that none of the proposed Territory sites were considered suitable by the Uranium Enrichment Group of Australia, and advances a number of arguments to justify the establishment of an enrichment plant in the Northern Territory.

621. URANIUM ADVISORY COUNCIL, 1979. FEASIBILITY OF URANIUM ENRICHMENT IN AUSTRALIA, URANIUM ADVISORY COUNCIL, CANBERRA, 9p.

Presents the Uranium Advisory Council's preliminary views on the feasibility of establishing a commercial uranium enrichment industry in Australia. Acknowledges 'substantial resistance' in Australia at both political and community levels to the uranium industry, but claims full support at all levels for the principle of processing Australian minerals prior to export. Considers the merits of various enrichment technologies, and some economic, commercial and environmental issues related to establishment of an enrichment plant. Reviews the proliferation aspects of enrichment and indicates that some upgrading in Australia's nuclear safeguards would be needed. Argues that the establishment of a plant would create benefits for Australian science and technology, ensure immunity from foreign legal action aimed at Australia's uranium exports, and increase Australia's standing amongst the world nuclear community. The report concludes that Australia possesses the necessary technical skills and expertise to plan, build and operate a centrifuge enrichment plant. Its authors feel unqualified to assess the economic viability of an enrichment project, accept AAEC advice that the routine operation of an enrichment plant would have negligible environmental effect, and assume that the Commonwealth would ensure that any enrichment plant was subject to effective international safeguards, thus minimising the risks of diversion for weapons production.

622. URANIUM ENRICHMENT GROUP OF AUSTRALIA, 1982. INVESTIGATION OF THE ESTABLISHMENT OF AN AUSTRALIAN URANIUM ENRICHMENT INDUSTRY: REPORT ON TECHNOLOGY AND CHOICE AND PLANT SITING AND OTHER MATTERS, UEGA, [SYDNEY], 7p.

Presents the conclusions of an investigation by UEGA into the establishment of an Australian uranium enrichment Industry. Reviews lead-up investigations and advises the Australian government that the centrifuge technology offered by EURENCO-CENTEC is the most appropriate uranium enrichment technology for Australia. Suggests that the most appropriate potential plant sites would be in areas adjacent to

Brisbane, Perth and Adelaide, and provides recommendations on the nature and timing of the further work necessary to establish whether and how Australia should proceed with proposals for the establishment of an enrichment industry.

623. URANIUM INFORMATION CENTRE LTD., [ND]. URANIUM ENRICHMENT, UIC, MELBOURNE, 4p.

Explains in simple terms how much uranium Australia has, where it is found, and how it is processed prior to export. Reviews government policy on uranium enrichment, and reports that although the Hawke government has endorsed most of the Slatyer Report's recommendations, it has decided that it is not appropriate for Australia to become further involved in the nuclear fuel cycle.

Cross References

2, 5, 14, 24, 25, 33, 34, 46, 49, 61, 93, 97, 118, 154, 174, 180, 203, 218, 230, 288, 299, 303, 308, 370, 547, 567, 591, 598, 694, 751

PART SEVEN

ENVIRONMENTAL ASPECTS

General

624. AUSTRALIAN ATOMIC ENERGY COMMISSION, 1973. PROCEEDINGS OF THE AAEC SYMPOSIUM ON ENVIRONMENTAL AND RADIOLOGICAL SAFETY ASPECTS OF THE MINING AND PROCESSING OF URANIUM, AAEC, LUCAS HEIGHTS, 113p.

Contains papers, or summaries of papers, on various aspects of the impact, or potential impact, of uranium mining on the physical environment and on humans coming into contact with radiation. Full papers deal with the philosophy of environmental protection, environmental studies for uranium provinces, and various aspects of radiation and radiation safety in uranium mining (5 papers). Also contains a bibliography on radiological health and safety aspects of uranium mining and ore treatment.

625. BORSCHMANN, G., 1982. RANGER SECRECY SPRINGS A LEAK, AUSTRALIAN, 8 OCTOBER, p9.

Reviews a seepage problem in the Ranger tailings dam and discusses the wider issue of public accountability of the Australian uranium industry. Questions the wisdom of state mining departments being the monitoring bodies for environmental control.

626. FISCHER, D., 1981. AUSTRALIA AND THE SPREAD OF NUCLEAR WEAPONS, URANIUM INFORMATION CENTRE, MELBOURNE, 7p.

Explains the function of the IAEA, the significance and effectiveness of the NPT, and favourably reviews the safeguards that member countries, including Australia, have undertaken to uphold. Claims that 'every authoritative report' comparing risks to health and the environment ranked nuclear energy at least as safe as coal or oil, and comments that this fact should allay public fears about nuclear power and radiation.

627. ROBOTHAM, F.P.J., 1976. URANIUM AND NUCLEAR POWER: SOME UNRESOLVED PROBLEMS, PROCEEDINGS OF THE ROYAL AUSTRALIAN CHEMICAL INSTITUTE, 43, 1, p22-25.

Reviews current problems associated with uranium and nuclear power, argues that they remain largely

unresolved, and therefore questions Australia's involvement in uranium export. In view of the serious consequences of a loss-of-cooling accident, critically assesses reports on nuclear reactor reliability, with special reference to the Rasmussen Report (1974).

628. ROBOTHAM, R., 1975. THE DANGERS OF URANIUM, FARRAGO, 27 JUNE, p10-11, 17.

Analyses the dangers involved in the uranium and nuclear industries, and argues that Australia will be affected if they cause damage to the environment in other parts of the world. Presents a detailed account of the health hazards associated with each stage of the nuclear fuel cycle, and discusses the issues of nuclear safeguards and sabotage and their implications for government attitudes to civil liberties and for national security.

Cross References

78, 93, 96, 151, 173, 183, 190, 192, 195, 200, 233, 282, 316, 323, 334, 401, 617, 621, 755, 820, 831

Environmental Impact of Uranium Mining

629. ANON., 1974. THE URANIUM PROVINCE PREPARES FOR DEVELOPMENT, ECOS, VOL. 1, AUGUST, p22-28.

Outlines the aims and objectives of the Alligator Rivers Region Environmental Fact-finding Study (sponsored and jointly financed by the Commonwealth and mining interests), lists the groups involved in the study and reports its findings. Describes the natural environment of the Region, and reports that the most obvious environmental threats are believed to be those associated with uranium mining and uncontrolled tourism. Reports that all parts of the Region have potential for uranium discoveries; exploration to date has not disturbed any sensitive features, but uncontained mining wastes would cause considerable environmental disturbances due to the vagaries of the drainage system and climate. Includes an outline of the four major uranium discoveries in the Region and the study's findings on the Region's Aboriginal art and sacred sites.

630. ANON., 1976. THE RANGER URANIUM BLUES, CHAIN REACTION, 2, 1, AUTUMN, p11-12.

Briefly describes the Alligator Rivers Region, reviews negotiations to set up a national park and lists the concessions made to commercial concerns in the area. Notes the environmental disaster of the Rum Jungle uranium mine, outlines the uranium deposits discovered in the Alligator Rivers Region, and considers the Jabiluka leases in more detail. Reports on the contents of a cable from the International Union for the Conservation of Nature and Natural Resources opposing mining in Kakadu on environmental and cultural grounds.

631. ANON., 1977. RANGER - IMPLICATIONS OF ENVIRONMENTAL FACTORS ON URANIUM MINING, MINING MAGAZINE, 137, 6, p651-658.

Reviews the mining implications of the Second Ranger Inquiry Report. Describes the location and geology of the Ranger orebodies, and outlines mining and milling techniques. Reviews environmental factors relevant to operations at Ranger and lists measures intended to reduce the mine's environmental and social impact. Describes the methods proposed for tailings disposal and water management, and outlines measures to protect Ranger workers from radioactive contamination.

632. ANON., 1981. THE LESSONS OF RUM JUNGLE, NUCLEAR NEWS, NO. 10, 4p.

Reviews the costs and benefits of the Rum Jungle uranium mine and its lessons for future uranium mining. Includes research findings concerning environmental damage which occurred as a result of contaminants from mining waste heaps.

633. ANON., 1982. HONEYMOON OCCUPATION [HONEYMOON URANIUM PROJECT SOUTH AUSTRALIA], LOTS WIFE, 5 MAY, p10-11.

Criticises proposals to mine uranium at Honeymoon in South Australia on the grounds that the planned solution mining technique poses serious environmental risks. Cites a case from the United States where a uranium mine using similar techniques reportedly caused substantial environmental damage. Argues that the Draft Environmental Impact Statement (DEIS) submitted by the developer was deficient both in comparison to those prepared by other uranium companies and in terms of the relevant legislative requirements. Discusses appropriate strategies and behaviour for people travelling to Honeymoon to mount non-violent protests.

634. ANDERSON, E.M. AND ATKINSON, W.J., 1981. THE DEVELOPMENT THROUGH ENVIRONMENT PROTECTION LEGISLATION OF INSTITUTIONAL, LEGAL AND REGULATORY CONTROLS ON URANIUM MINING IN NORTHERN AUSTRALIA, INTERNATIONAL CONFERENCE ON RADIATION HAZARDS IN MINING: CONTROL, MEASUREMENT AND MEDICAL ASPECTS, COLORADO SCHOOL OF MINES, NEW YORK, p299-305.

Reviews the findings and recommendations of the Ranger Inquiry and outlines steps taken by government to control and regulate proposed uranium mining and milling operations in the Alligator Rivers Region. Includes a review of relevant legislation, the creation of a national park, the work of the Supervising Scientist and protective measures for Aborigines. Reviews individual environmental protection schemes for Ranger, Nabarlek, Jabiluka and Koongarra. Briefly outlines Australian safeguards measures and lists customer countries. Defends the progress of mining development in the Region on the grounds that government has paid careful and deliberate attention to environmental implications of each uranium development proposal.

635. BAILEY, P., 1986. PLANNING THE NABARLEK DECOMMISSIONING, PART 1: POLITICAL ASPECTS, IN AUSTRALIAN MINING INDUSTRY COUNCIL, ENVIRONMENTAL

WORKSHOP - 1986, LAUNCESTON, 13-17 OCTOBER, AMIC,
CANBERRA, p282-287.

Discusses some key technical, legislative and political issues involved in the decommissioning and rehabilitation of Queensland Mines Ltd's Nabarlek uranium mine. Outlines some of the specific political problems faced by the company in planning and preparing for decommissioning, including the multiplicity of relevant legislation, the necessity to deal with different levels of government and with a large number of individual government departments and agencies, and the fact that politicians (and consequently public servants) tend to be preoccupied with 'urgent' problems which divert their attention from the important but long-term issues involved in decommissioning. Discusses the criteria governments may apply in drawing up rehabilitation and decommissioning requirements, and argues that the setting of a predetermined standard of work is preferable to the application of a set period of time over which post-mining maintenance and monitoring must be continued.

636. BORSCHMANN, G., 1982. HIDING THE EYESORE AT RUM JUNGLE, WEEKEND AUSTRALIAN, 6-7 NOVEMBER.

637. BUCKLEY, R., 1986. ENVIRONMENTAL ASPECTS OF URANIUM EXTRACTION AND PROCESSING IN SOUTH AUSTRALIA, TRANSACTIONS OF THE INSTITUTION OF MINING AND METALLURGY (SECTION C), NO. 95, JUNE, pC125-C126.

Argues that since public perception of environmental impacts and risks exerts a significant constraint on the extraction and processing of uranium in South Australia, it is pertinent to the mining industry to review these environmental aspects in relation to the main operational parameters of the mines concerned. Provides a technical assessment of present and possible future uranium mining and conversion in South Australia, and examines the implications of mining and conversion for the physical and biological environment.

638. CAMPBELL, H. AND SCOTT., A., 1980. COSTS OF LEARNING ABOUT THE ENVIRONMENTAL DAMAGE OF MINING PROJECTS, ECONOMIC RECORD, MARCH, p36-53.

Briefly describes two ways of gathering information about and mitigating the impact of a large-scale mining project: one involves postponing the construction and operation of the project while attempts are made to forecast, evaluate and prepare for its impact; the

other involves commencing immediately with a small-scale, or attenuated, project with a smaller impact and by studying the effects of this project inferring the impact of a large-scale project. The costs of the two alternative policies of postponement and attenuation are defined as reductions in the present value of the project in question. A model of open-pit mining is presented which allows these costs to be calculated for any degree of postponement or attenuation. The model is applied to three uranium mines in the Northern Territory of Australia to estimate for each mine the costs of the two policies. The model is then used to estimate the costs of sequences of mine development in the Northern Territory involving various combinations of postponement and attenuation policies.

639. CARINS, B., 1982. THE HONEYMOON IS OVER, LOTS WIFE, 1 JUNE, p8.

Criticises the proposal to mine uranium at Honeymoon, on the grounds of environmental risks associated with the proposed solution mining technique, and the broader risks involved in uranium mining (disposal of radioactive waste, worker safety, damage to Aboriginal land). Describes the journey of anti-uranium groups from South Australia, Victoria and New South Wales to Honeymoon in May 1982 to protest against the proposed development.

640. COSTELLO, J.M., 1982. RADIOACTIVE WASTE MANAGEMENT WITH SPECIAL REFERENCE TO MINING AND MILLING OF RADIOACTIVE ORES, IN AUSTRALIAN RADIATION LABORATORY, TECHNICAL REPORT 143, JANUARY, p324-350.

Outlines principles and objectives of general radioactive waste management, describes the nature and composition of wastes from mining and milling of uranium and thorium ores, and discusses alternative management procedures, engineering technologies and some promising new developments for disposal of mill tailings. Describes international studies on the disposal of uranium mill tailings (with particular reference to long-term performance objectives) and discusses some proposals for national criteria for tailings disposal practices. Briefly reviews experience from mining and milling uranium ores in Australia, and notes problems arising from some former practices. Reviews the status of development of major Australian uranium resources together with relevant legislative developments and environmental requirements.

641. DAVY, D.R., 1973. ENVIRONMENTAL STUDIES FOR URANIUM PROVINCES - AIMS AND METHODS, IN AAEC SYMPOSIUM ON

ENVIRONMENTAL AND RADIOLOGICAL SAFETY ASPECTS OF THE
MINING AND PROCESSING OF URANIUM, 9-10 DECEMBER 1971,
AAEC, LUCAS HEIGHTS, PAPER NO. 4, 10p.

Briefly discusses the relationship between design criteria for environmental controls on uranium mining projects and the economic viability of those projects. Identifies four general classes of pollutants associated with uranium mining, heavy metal, chemical, radioactivity and suspended solids, and discusses their origins and potential effects. Lists the steps to be adopted in establishing design criteria for environmental control of a uranium mining operation. Applies these in a preliminary assessment of the NT uranium province, briefly discussing characteristics of the environment, critical habitats and potential hazards to them, tolerance levels of organisms to pollutants, and radiological and chemical purity aspects.

642. DAVY, D.R. (ED), 1975. RUM JUNGLE ENVIRONMENTAL STUDIES, AAEC, LUCAS HEIGHTS, VARIOUS PAGINGS.

Contains a number of studies concerning the environmental impact of Rum Jungle uranium mine. These include (1) A brief review of the managerial history of the Rum Jungle project and an assessment of its environmental costs and benefits. (2) A description of the geology and geography of the Rum Jungle region, and the environmental impact of mining operations such as ore processing, effluent disposal and the leaching of stockpiles and overburden heaps. (3) A description of the climatology of the Rum Jungle region and a discussion concerning the river system and seasonal factors affecting the pollution cycle. (4) Estimated annual input of pollutants for 1969-74 wet seasons, an examination of specific sources of pollution, estimated percentages of contaminants and heavy metals entering the East Finnis River system from the mine. (5) A review of the effects of pollution on the distribution and abundance of aquatic animals in the Finnis River system. (6) An assessment of heavy metal accumulation in Finnis River floodplains and a discussion of its significance with respect to the plains' use as pastoral land. (7) The results of a study into radioactive contamination in the Finnis River system. (8) Results from modelling studies of mining waste heap behaviour. (9) A description of revegetation proposals to alleviate pollution in the Rum Jungle area.

643. DAVY, D.R., 1978. AN OVERVIEW OF THE ALLIGATOR RIVERS AREA, NORTHERN TERRITORY, IN RUMMERY, R.A. AND HOWES, K.M.W. (EDS), MANAGEMENT OF LANDS AFFECTED BY MINING:

PROCEEDINGS OF A WORKSHOP ORGANISED BY THE CSIRO
DIVISIONS OF LAND RESOURCES MANAGEMENT AND MINERALOGY,
KALGOORLIE, WA, p71-86.

Reviews problems that arise in planning the management of lands to be affected by uranium mining, dealing with the Alligator Rivers Region as a whole except where there are important long-term differences between individual projects, these being discussed separately as site-specific matters. Discusses the management of waste rock, open pits, tailings dams and mill areas. Outlines some site-specific problems at Koongarra (site drainage affecting Woolwonga Wildlife Sanctuary), Jabiluka (a number of problem areas), and Nabarlek (hydrological isolation of the filled-in pit). Includes a list of topics which mining companies would be expected to research.

644. EAST, T.J., 1986. GEOMORPHOLOGICAL ASSESSMENT OF SITES AND IMPOUNDMENTS FOR THE LONG TERM CONTAINMENT OF URANIUM MILL TAILINGS IN THE ALLIGATOR RIVERS REGION, AUSTRALIAN GEOGRAPHER, 17, 1, p16-21.

Details a program of current and future research into those geomorphological processes likely to affect the long-term containment of uranium mill tailings in the Alligator Rivers Region of the Northern Territory, including the following major areas of interest: identification of geomorphic hazards at proposed impoundment sites; determination of erosion rates on impoundment slopes; and prediction of patterns of fluvial dispersal of released tailings. Argues that impoundment design and construction must take into account geomorphological and climatological processes, and claims that this new approach to mine waste management would entail more exacting standards and research than normally applied in mining operations.

645. ENERGY RESOURCES OF AUSTRALIA, 1985. RANGER URANIUM MINE AND THE ENVIRONMENT, ENERGY RESOURCES OF AUSTRALIA, SYDNEY, 20p.

Explains how Energy Resources of Australia is meeting environmental restrictions and regulations at its Ranger uranium mine, and outlines the environmental safeguard programme which takes into account the area's natural water systems, its flora and fauna, and the health and welfare of the local Aboriginal population. Argues that with sound management, guidance from effective legislation, assistance from the supervising authorities and goodwill between all the parties involved, the

various and occasionally conflicting interests in the natural resources of the area can continue to be reconciled.

646. EUPENE, G.S., 1985. MINERAL POTENTIAL OF THE KAKADU REGION, NT CHAMBER OF MINES INC., DARWIN, 15p.

Expresses the views of the Northern Territory Chamber of Mines on proposals to extend Kakadu National Park and restrict and/or ban exploration and mining activity in areas believed to be rich in mineralisation. States the Chamber's position on Kakadu, presents a mining history of the region, discusses the mineral potential of Kakadu, and claims there is a substantial demand for Australian uranium. Argues that there is evidence of other minerals in the region. Contains a series of maps of the Kakadu region on which are superimposed maps of a number of major Australian cities and their environs.

647. FRY, R.M., 1982. THE LONG-TERM MANAGEMENT OF URANIUM MILL TAILINGS, AUSTRALIAN FOREIGN AFFAIRS RECORD, APRIL, p165-168.

Reviews an OECD/NEA study on the long-term management of uranium mill tailings which, along with other waste rock remaining at the mine and mill site, constitute a continuing source of environmental pollution and radiation exposure unless properly treated. Claims that the study will be valuable in providing an agreed international basis for long-term tailings management. Outlines the aims and objectives of the study and Australia's contribution to it, reviews progress to date on sites in the United States, Canada and Australia, and reports that the Australian government has encouraged participation by Australian experts in international studies and meetings dealing with related fields.

648. HARRIS, C., 1986. KAKADU: MINING ENCROACHMENT CONTINUES, HABITAT AUSTRALIA, 14, 6, p4-7.

Discusses the issue of further mineral exploration and development in the Magela floodplains by Geo Peko and in the South Alligator River Catchment area by BHP. Claims that federal proposals to excise part of the proposed Kakadu Stage Three for mining would allow BHP to develop Coronation Hill Mine, and argues that the inclusion of all of Stage Three is crucial to the protection of the Park's environment. Denies claims by mining companies that Aboriginal traditional owners favour mining, and that mining would only affect a small part of the park and be

of little environmental significance. Argues that 97 per cent of the Kakadu Region's known mineral resources are outside both the existing Park and the proposed Stage Three, and that government should confine mining exploration to areas outside these boundaries.

649. HART, B., 1980. WATER QUALITY AND AQUATIC BIOTA IN MAGELA CREEK, IN HARRIS, S. (ED), SOCIAL AND ENVIRONMENTAL CHOICE: THE IMPACT OF URANIUM MINING IN THE NORTHERN TERRITORY, CRES MONOGRAPH NO. 3, CENTRE FOR RESOURCE AND ENVIRONMENTAL STUDIES, ANU, CANBERRA, p47-63.

Reviews current knowledge relating to the existing aquatic biota and water quality in the Alligator Rivers Region, with particular emphasis on the Magela Creek catchment, and to the natural variability of the system. Argues that the most important potential impacts on the aquatic environment will result from mining and milling operations at Ranger and from the regional township, and discusses management strategies that will minimise such impacts.

650. KAVANAGH, J., 1986. MINERS EDGE CLOSER TO NT TREASURE TROVE, BUSINESS REVIEW WEEKLY, 24 OCTOBER, p22-28.

651. LACKEY, J.A., 1975. ENVIRONMENTAL ASPECTS OF URANIUM EXTRACTION, AMDEL BULLETIN, NO. 19, APRIL, p11-20.

Describes the effluents produced from the processing of uranium ores by the acid leaching process, and the methods of waste treatment and disposal that are available to the design engineer. States that a comprehensive waste treatment programme incorporating these methods will be necessary to ensure no environmental damage occurs as a result of uranium extraction.

652. LEGGATE, J., 1984. MANAGING THE RANGER URANIUM MINE IN THE ALLIGATOR RIVERS REGION - THERE IS MUCH MORE TO THIS BUSINESS ENTERPRISE THAN JUST PRODUCTION, IN DARWIN CONFERENCE, 1984, AUS.I.M.M., MELBOURNE, p17-20.

Addresses the environmental programmes of Ranger Uranium Mines (RUM) and their importance in the future profitability of the Ranger mine. Claims that by acknowledging the need for environmental constraints RUM is giving a lead to the Australian mining industry. Explains the need for environmental regulations and the terms of the Authorisation to Mine granted to RUM by

the Commonwealth government. Reports that the company employed the 'best practicable technology' during the mine's design and construction to ensure long-term environmental protection during and after operations. Comments briefly on the work of RUM's environmental division, the status of environmental technology, and the Code of Practice within which RUM operates and the ALARA (As Low As Reasonably Achievable) principle which is applied to radiation levels and radiation safety. Argues that environmental staff need to be accepted and well supported by the production workforce to function effectively.

653. LEVINS, D.M., 1980. ENVIRONMENTAL IMPACT OF URANIUM MINING AND MILLING IN AUSTRALIA, CIM BULLETIN, 73, 822, p119-125.

Details Australian uranium mining and milling projects and the measures proposed to minimise their environmental impact. Discusses major aspects of environmental impact control, including treatment of liquid wastes, water management, control of radon and other airborne releases, and the disposal of tailings. Claims that the measures adopted to limit the environmental impact of uranium mining and milling will ensure control standards as strict as those operating anywhere in the world.

654. LICHACZ, W. AND MYERS, S., 1977. URANIUM MINING IN AUSTRALIA, IN ELLIOTT, M. (ED) GROUND FOR CONCERN, AUSTRALIA'S URANIUM AND HUMAN SURVIVAL, PENGUIN BOOKS, CHAPTER 2, 26-63.

The authors state that uranium mining would morally and physically scar Australia and particularly the NT, and claim that the mining industry in the NT has a history of disregard for the environment. They detail 'environmental atrocities' committed by miners at Rum Jungle and the frustrations felt by the Northern Territory Administration at the AAEC's unwillingness to rectify them. The proposed mining operations in the Alligator Rivers Region are outlined, both physically and in the context of erosion of Aboriginal culture. Describes the Ranger Inquiry hearing in Darwin and at Mudginberri Station and includes lengthy transcripts from cassette tapes made for and by Aboriginal people describing the complexity of uranium mining and its possible effects. Records the feelings of powerlessness of some traditional owners to stop what they do not want and their realisation of the inevitability of mineral development.

655. LINDQUIST, J., 1985. AN ENVIRONMENTAL CHEMIST'S VIEW ON KAKADU, AUSTRALIAN SCIENCE MAG, NO. 4, NOVEMBER, p41-45.

Lists a number of environmental and cultural factors which make Kakadu an area of world interest. Very briefly outlines major aspects of the region's hydrology, and describes waste products from uranium mining and ways in which they could affect water quality.

656. LUCAS, P., 1979. THE RANGER URANIUM PROJECT, IN RICHARDS R.J. AND HAYLOCK, W.J. (EDS) PROCEEDINGS, NORTH AUSTRALIAN MINE REHABILITATION WORKSHOP, LAND CONSERVATION UNIT, CONSERVATION COMMISSION, DARWIN, p38-45.

Outlines in non-technical terms the programmes developed by Ranger Uranium Mines for water management, monitoring of water leaving the water management area, and rehabilitation and revegetation of the mine site. Argues that as a result of these programmes and because of differences in ore composition the water contamination potential of Ranger is very much less than at Rum Jungle.

657. LUCAS, P., 1980. WATER QUALITY PLANNING AND CONTROL AT RANGER URANIUM MINES NORTHERN TERRITORY, IN AUSTRALIAN MINING INDUSTRY COUNCIL, ENVIRONMENTAL WORKSHOP, AMIC, ROCKHAMPTON, p418-429.

Notes the Ranger Inquiry's concern about effects of water pollution caused by uranium mining in the Alligator Rivers Region, and the inclusion of material gathered by the government-sponsored Fact Finding Study (1972-73) in the Ranger Environmental Impact Statement. Details Ranger's water management plan, claims it reduces the possibility of contaminated water release to a low level, but explains why an environmental monitoring programme is still required of the company. Identifies areas for further investigation and argues that sewerage effluent from Jabiru poses more of an ecological threat than water from the mine site.

658. MARSHALL, J.K., 1978. WORKSHOP GROUP SUMMARY, IN RUMMERY, R.A. AND HOWES, K.M.W. (EDS), MANAGEMENT OF LANDS AFFECTED BY MINING: PROCEEDINGS OF A WORKSHOP ORGANISED BY THE CSIRO DIVISION OF LAND RESOURCES MANAGEMENT AND MINERALOGY, KALGOORLIE, WA, p106-110.

Summarises relevant workshop contributions (see Nos 643, 659) and compares two major uranium regions, the

Alligator Rivers, Northern Territory and the Calcrete Sediments, Western Australia. Summarises discussion on public education programmes on uranium mining, suggests some guidelines for discussions on environmental monitoring schemes, and summarises conclusions on tailings management, waste rock dumps, pits and revegetation, hydrology and problems of landscape stability. Recommends that relevant information should be available at the start of a project but reports doubts about the usefulness of presently-available information retrieval systems for current purposes and recommends improvement of data sources.

659. MORLEY, A.W., 1978. REHABILITATION IN VEIN DEPOSIT MINING - THE JABILUKA URANIUM PROJECT, IN RUMMERY, R.A. AND HOWES, K.M.W. (EDS), MANAGEMENT OF LANDS AFFECTED BY MINING: PROCEEDINGS OF A WORKSHOP ORGANISED BY THE CSIRO DIVISION OF LAND RESOURCES MANAGEMENT AND MINERALOGY, KALGOORLIE, WA, p87-97.

Outlines the proposed revegetation and rehabilitation programme for the Jabiluka Project. Provides details of the Project, the proposed rehabilitation research and segregation of overburden and waste materials, together with the philosophy behind the rehabilitation scheme.

660. MYHRA, S., 1978. SOME ENVIRONMENTAL ASPECTS OF URANIUM MINING AND MILLING IN NORTHERN AUSTRALIA, SEARCH, 9,11, NOVEMBER, p400-406.

Reviews the basic scientific and technological parameters relating to environmental effects of uranium mining and milling on local ecosystems in North Australia. Presents the findings of a multi-disciplinary panel convened at Griffith University, and evaluates the hazards arising from radioactive emissions and discharge of toxic material in relation to accepted safe standards. Presents some firm conclusions regarding the potential hazards associated with long-term containment of tailings, contaminated water run-off and waste-rock stockpiles. Outlines what is known of the ecology of the Alligator Rivers and Arnhem regions, acknowledges the limitations of this information, and notes that adequate biological baseline data is needed to reach definitive conclusions. Discusses the proposed Jabiluka project in an assessment of the effects of mining and milling operations, and presents an overall tabular summary of possible environmental effects of uranium mining and milling activities. Assesses the credibility of environmental impact statements prepared by mining companies. Argues that, in view of the high

profitability of uranium mining ventures, only the most advanced methods of environmental safeguard and monitoring by the mining companies would be acceptable.

661. NORTHERN TERRITORY GEOLOGICAL SURVEY, 1985. MINERAL POTENTIAL OF THE KAKADU REGION, TECHNICAL REPORT GS85/16. DEPARTMENT OF MINES AND ENERGY, DARWIN, 28p.

Details the nature and significance of the known mineral occurrences in the Kakadu/Gimbat-Goodparla region and outlines the resource potential. Describes the region's topography, drainage, geology, mineralisation and known and potential mineral resources. Presents a case for further exploration to upgrade existing prospects and to identify additional prospective zones whose existence is suggested by comparisons with the Athabasca Basin in Canada. Examines mineral exploration within the area in three historical stages, and outlines the extent and aims of government involvement in exploration. Argues that exploration and mining cause minimal and only temporary environmental disturbance, and that areas of great scenic and recreational value could be withheld from mining activity while releasing surrounding areas of great resource potential for development. Includes a number of maps and tables relating to Kakadu's known and potential mineral resources.

662. OVINGTON, J.D., 1980. URANIUM MINING AND KAKADU NATIONAL PARK, IN HARRIS, S. (ED), SOCIAL AND ENVIRONMENTAL CHOICE: THE IMPACT OF URANIUM MINING IN THE NORTHERN TERRITORY, CRES MONOGRAPH 3, CENTRE FOR RESOURCE AND ENVIRONMENTAL STUDIES, ANU, CANBERRA, p76-86.

Briefly outlines the establishment of Kakadu National Park and the Fox Reports' recommendations regarding tourism, Aborigines and land use in the Park. Discusses the impact of uranium mining operations and the existence of Jabiru on Park values, and argues that any adverse impact can be minimised by cooperative efforts by park residents, mining companies, the Northern Land Council and Northern Territory and Commonwealth Authorities.

663. PLUNKETT, M., 1981. URANIUM SPILL THREATENS TOWN WATER SUPPLY, NATIONAL TIMES, 17-23 MAY, pl,3.

Uses company documents and evidence submitted to a mining warden's court to trace events surrounding the leakage of radioactive material from a stockpile of uranium ore at the Ben Lomond project in north Queensland. The material reportedly leaked into

streams feeding the water supply of Charters Towers after heavy seasonal rains in January 1981.

664. RITCHIE, I., 1985. THE RUM JUNGLE EXPERIENCE A RETROSPECTIVE VIEW, AUSTRALIAN SCIENCE MAG, NO. 4, NOVEMBER, p22-30.

Traces the development of the Rum Jungle uranium mine, outlines mining and milling operations and compares attitudes to mine waste management during its exploitation with those at Ranger and Nabarlek in the 1970s. Notes that one major difference between operations at Rum Jungle and at present-day uranium mines is the attention paid to water management, but argues that this is more due to growing environmental awareness about the impact of mining than to the Rum Jungle experience. States that Rum Jungle demonstrates that any mine where pyrites are associated with the mineral being mined or with the surrounding waste rock generates residues that can be a long-term source of pollution, which implies that it is essential to plan water and waste management as carefully in the post-mining period as in the mining period.

665. SCOTT, A. AND CAMPBELL, H., 1979. POLICIES TOWARDS PROPOSALS FOR LARGE-SCALE NATURAL RESOURCE PROJECTS, RESOURCES POLICY, JUNE, p113-141.

Discusses the lack of western economic development that characterises 'frontier' peoples and lands and their social and environmental vulnerability, and uses an Australian uranium mine as an example to analyse in detail the impact of large-scale resource projects on such areas. Argues that four basic alternatives are available to governments faced with project development proposals: allow the project to proceed without any restrictions, forbid it outright, postpone it, or allow it to proceed on a smaller scale than that proposed by the developer ('attenuation'). The last two offer alternative methods of investigating harmful effects on the social and bio-physical environment, and of learning about the likely effects of a large-scale project. The authors use a hypothetical uranium project to examine the relative merits of the two strategies.

666. SMITH, M., 1987. KINTYRE A MAJOR URANIUM FIND AND DOGFIGHT FOR CRA, AUSTRALIAN FINANCIAL REVIEW, 14 AUGUST, p33.

Predicts that CRA Ltd's discovery of a uranium prospect at Kintyre, inside the boundaries of Western

Australia's Rudall River National Park, is likely to result in a conflict between mining, conservation and Aboriginal interests on a scale comparable to that which followed the discovery of uranium in the Kakadu region. Provides the limited information which CRA Ltd has released on its find, and describes the company's operations in the area.

667. WALKER, D.G., FRY, R.M. AND MORISON, I.W., 1982. WASTE MANAGEMENT AND ENVIRONMENTAL CONTROLS IN THE AUSTRALIAN URANIUM MINING INDUSTRY, ATOMIC ENERGY IN AUSTRALIA, 25, 3/4, p7-20.

Notes that the formulation of waste management and environmental controls for future uranium mining developments in the Alligator Rivers Region has been influenced by the Region's diversity of wildlife and native flora, its tourist potential and by concern for preservation of Aboriginal sites of cultural and archaeological significance. Reviews earlier uranium mining operations, and reports that the main outcomes of environmental degradation at Rum Jungle were a commitment to rehabilitate the site and a determination to prevent such occurrences in the future. Outlines research findings by the AAEC and the Commonwealth which provided the regional environmental baseline for the subsequent Ranger Inquiry and shaped the environmental conditions for operations at Ranger. Details waste management proposals at the Alligator Rivers mines, considers legislation for waste management and environmental control, and reviews the work of the Office of the Supervising Scientist. Reports that planned rehabilitation and its progressive implementation is becoming widely accepted as most effective not only for waste management and environmental control but also as an effective public relations exercise.

668. WATSON, G.M., 1975. RUM JUNGLE ENVIRONMENTAL STUDIES SUMMARY REPORT, AUSTRALIAN ATOMIC ENERGY COMMISSION, LUCAS HEIGHTS, 25p.

Summarises the findings of a range of studies dealing with the environmental impact of Rum Jungle (see No. 642). Identifies sources of pollution and assesses their relative importance. Notes the occurrence of seasonal variations and differences between dispersal patterns of several metals of interest. Examines the geographical extent of chemical and biological pollution and the basic mechanisms involved in continuing pollution, and attempts to determine the fate of heavy metals in the surrounding environment.

669. WILMINGTON, S., 1981. MASSIVE COVER-UP OF RADIATION
LEAK, DIRECT ACTION, 27 MAY, p9.

Cross References

72, 114, 144, 149, 198, 274, 284, 306, 318, 441, 461,
485, 489, 494, 503, 518, 702, 720, 800, 801, 802, 837,
844

Environmental Monitoring

670. AUSTRALIAN SCIENCE AND TECHNOLOGY COUNCIL (ASTEC), 1982. OFFICE OF THE SUPERVISING SCIENTIST, A REPORT TO THE PRIME MINISTER, AGPS, CANBERRA, 39p.

The report presents the results of ASTEC's review of the Office of the Supervising Scientist (OSS), established as a result of the Ranger Inquiry to supervise and coordinate research and monitoring programmes associated with protecting the environment in the Alligator Rivers Region. The review found that relevant research was moving far too slowly, due to lack of appropriately qualified staff, inadequate laboratory space and a low standard of housing. The Report recommends that the Commonwealth government should spend \$5.4 million (January 1982 dollars) to build a permanent field laboratory at Jabiru; increase the staff ceiling of the OSS by 30 during 1982/83-1983/84; station a senior scientist at Jabiru to provide leadership in the laboratory; and accelerate the OSS's residential building programme.

671. COMMONWEALTH OF AUSTRALIA, 1980. ATOMIC ENERGY ACT 1953, CONSENT TO ASSIGNMENT OF AN AUTHORITY, AGPS, CANBERRA, VARIOUS PAGINGS.

Provides authorisation for the Ranger partners to consign their authority to carry out operations in the Ranger Project area to ERA Ltd. Reproduces the authority granted to the Ranger partners in January 1979, the conditions and restrictions attached to that authority, and the environmental requirements for the Ranger project.

672. DREYFUS, M., 1982. URANIUM AND RESPONSIBILITY: NORTHERN TERRITORY, LEGAL SERVICE BULLETIN, 7 AUGUST, p179-182.

Claims that implementation of the Ranger Inquiry's recommendations regarding environmental protection in the Alligator Rivers Region is threatened by delegation of responsibility for environmental monitoring of uranium mines from the Commonwealth to the Northern Territory government. Draws on statements by the Supervising Scientist to argue that the Northern Territory government's monitoring activities have been ineffective, and claims that this situation is unlikely to change given its strong commitment to uranium mining and its record in dealing with Aboriginal land. Thus continued

Commonwealth involvement is necessary if uranium mining is to be monitored to the highest international standards.

673. FRY, R.M., 1980. ENVIRONMENTAL PROTECTION AND URANIUM MINING IN THE ALLIGATOR RIVERS REGION, IN HARRIS, S. (ED), SOCIAL AND ENVIRONMENTAL CHOICE: THE IMPACT OF URANIUM MINING IN THE NORTHERN TERRITORY, CRES MONOGRAPH 3, CENTRE FOR RESOURCE AND ENVIRONMENTAL STUDIES, ANU, CANBERRA, p12-24.

Outlines the environmental measures and the legislative and administrative arrangements established by the federal and Northern Territory governments in relation to uranium mining to ensure the proper protection of the Alligator Rivers Region, reviewing in detail the legislation pertaining to the establishment, appointment and functions of the Supervising Scientist. Presents some examples of environmental requirements and related legislation and supervisory authorities. Claims that the existence of the OSS and its role in environmental control was an important element in the willingness of the Northern Land Council to accept the Commonwealth's proposals for Ranger and Nabarlek. Outlines the areas of research being undertaken by the OSS, and describes the establishment, composition and function of a committee to coordinate the many disparate interests in the region and involving representatives from research and monitoring programmes, mining companies, national park authorities, and the Northern Land Council.

674. HAYLOCK, B.J., 1979. THE ROLE OF THE LAND CONSERVATION UNIT IN THE URANIUM PROVINCE, IN RICHARDS R.J. AND HAYLOCK W.J. (EDS), PROCEEDINGS NORTH AUSTRALIAN MINE REHABILITATION WORKSHOP, LAND CONSERVATION UNIT, CONSERVATION COMMISSION, DARWIN, p46-51.

Outlines the responsibilities of the Land Conservation Unit of the Northern Territory Conservation Commission regarding environmental conditions applied to the Ranger mine. Describes the legislation under which it exercises these responsibilities and briefly discusses the measures taken to fulfil them.

675. METZNER, A., 1986. THE RANGER FACTORS, MINING MONTHLY, FEBRUARY, p36-39.

Discusses environmental problems associated with disposal of water at the Ranger uranium mine, and some proposed solutions. Reviews supervision of

Ranger's environmental monitoring activities by the Northern Territory Department of Mines and Energy and by the OSS. Outlines the structure and function of the OSS, reproduces Ranger executive Fisk's assurances about meticulous reporting of incidents at the mine, and mentions the presence of resident Northern Territory government inspectors at Ranger. Outlines the history of the Ranger mine, and provides details on various aspects of its operations and marketing arrangements, the structure of its controlling company, ERA, and on political events leading up to the start of mining operations in 1981.

676. NORTHERN TERRITORY DEPARTMENT OF MINES AND ENERGY, SIX MONTHLY REPORT ON SURVEILLANCE OF ENVIRONMENTAL MONITORING IN THE ALLIGATOR RIVERS REGION, NORTHERN TERRITORY DEPARTMENT OF MINES AND ENERGY, DARWIN, SIX MONTHLY, MARCH 1980-

Outlines the activities of NT government authorities in implementing their responsibilities for surveillance of environmental monitoring in uranium mining and related operations in the Alligator Rivers Region. Reports on any alterations made to the authorisations issued for the Nabarlek and Ranger mines and on any infringements of those authorisations. Provides a detailed outline and analysis of environmental monitoring activities and the data they have generated at the Nabarlek and Ranger mines, and reports on any more general research or monitoring work carried out in the Region by Northern Territory authorities.

677. RANGER URANIUM MINES PTY LTD., ENVIRONMENTAL DEPARTMENT, 1985. URANIUM MINING, AUSTRALIAN SCIENCE MAG, NO. 4, NOVEMBER, p34-40.

Briefly describes the background to the establishment of an environmental protection programme at Ranger uranium. Outlines that programme in non-technical terms, focussing on planning and design of the mine and associated facilities, monitoring of environmental impacts and reappraisal of the programme in the light of improved information.

678. SUPERVISING SCIENTIST FOR THE ALLIGATOR RIVERS REGION, ANNUAL REPORT, AGPS, CANBERRA, ANNUAL, 1979-

Briefly describes the Alligator Rivers Region, and explains the roles, functions and organisational structure of the Office of the Supervising Scientist. Outlines the legislative basis for its operations, and

describes its research activities and its supervision and assessment work. Provides a general analysis of recent developments affecting uranium mining in the Region, and a detailed analysis of developments at the Nabarlek and Ranger mines, including project status, water management, tailings management, occupational hygiene, air quality monitoring and rehabilitation planning. Appendices include lists of Commonwealth and NT legislation and of Agreements relevant to the Office's role; the environmental requirements which apply to the Nabarlek and Ranger mines; authorisations issued to the two mines; details of any infringements of those authorisations; and a summary of environmental regulatory service programmes operated by the NT government.

679. SUPERVISING SCIENTIST FOR THE ALLIGATOR RIVERS REGION,
ALLIGATOR RIVERS REGION RESEARCH INSTITUTE ANNUAL
RESEARCH SUMMARY, AGPS, CANBERRA, ANNUAL, 1984-

Outlines the background to the establishment of the Alligator Rivers Region Research Institute as part of the environmental monitoring arrangements associated with uranium mining in the Region, and provides a brief description of the Region itself, of uranium mining activity, and of environmental control. Briefly summarises the research programme currently being carried out by the Institute, then provides a detailed description of activity and findings in major areas of research, including geomorphology, environmental radioactivity, water chemistry, biological monitoring and plant ecology.

Cross References

317, 457, 656, 667, 832

Nuclear Waste Disposal/Storage

680. ANON., 1977. N-GARBAGE, URANIUM DEADLINE, 2,1, p7-10.

In view of occurrences of radioactive waste leakage elsewhere in the world as well as Australia, this article invites readers to be sceptical about the mining industry's assurance that the same will not happen with the development of the Ranger uranium site. Rum Jungle, Port Pirie, Maralinga and Bairnsdale are listed as places at which radioactive waste problems have occurred.

681. ANON., 1977. DEALING WITH NUCLEAR WASTES, SOCIAL SURVEY, VOL. 26, MAY, p99-100.

Discusses the problem of safely storing high-level nuclear waste for the length of its 'immense' lifetime so that it will neither be disturbed by succeeding generations nor 'escape' from storage. Reviews the vitrification method of storage, and claims that this technique seems safe enough to allow the present generation to go ahead with the use of nuclear energy 'without being guilty of any serious moral fault on the grounds of careless disposal of nuclear waste'.

682. ANON., 1978. WASTE NOT WANT NOT [AUSTRALIA AS A NUCLEAR WASTE DEPOSITORY], NEW JOURNALIST, NO. 30, APRIL, p17-19.

Discusses the issues involved in Australia becoming a nuclear waste depository. Reviews press coverage of government policy and puts forward the opinion of a senior academic scientist, Dr Terry Sabine, on Australia's obligation and on its ability to accept and safely dispose of nuclear waste. Discusses the influence of external political and economic pressure on Australia to become a waste depository and the implications of such pressure for a potential Australian enrichment industry.

683. ANON., 1981. SYNROC: THE KEY TO ACCEPTABLE NUCLEAR WASTE DISPOSAL? NATUNI, 2, AUTUMN, p3-5.

Presents the case for SYNROC, a system for radioactive waste disposal, identified along with reactor safety and nuclear weapons proliferation as the three major areas of public concern in the nuclear debate. Current disposal technologies are critically examined and a detailed explanation of Professor Ringwood's SYNROC system presented. Ringwood admits to some room for

improvement in the nuclear industry with regard to reactor design, safety standards and public accountability. He believes withholding uranium will only weaken Australia's ability to contribute to meaningful safeguards and anti-proliferation negotiations, but he does identify radioactive waste disposal as an area where Australia can give a world lead. He believes a policy of establishing enrichment and fabrication facilities in Australia, combined with the obligatory return of leased fuel rods for safe disposal in Australia, would be technologically feasible, economically beneficial and would allay public fear over misuse of Australian uranium.

684. ALFREDSON, P.G. AND LEVINS, D.M., 1976. RADIOACTIVE WASTE MANAGEMENT, ATOMIC ENERGY IN AUSTRALIA, 19, 3, JULY, p18-31.

Reviews present and future methods of managing radioactive wastes in the nuclear industry. States that during the stages from uranium mining to fuel fabrication the main purpose of waste management is to limit and control dispersal into the environment of uranium and its decay products, particularly radium and radon. Claims that although nuclear reactors produce large amounts of radioactivity, release rates from commercial power reactors have been low and well within legal limits. Reports that the principle waste from reprocessing is a high activity liquid containing essentially all the fission products along with the transuranium elements, and notes that although most high activity wastes are currently stored as liquid in tanks, there is agreement that future wastes should be converted into solids. Refers to demonstrations of processes to solidify wastes in pilot plants in the United States and Europe, and argues that the best method for ultimate disposal appears to be placing the solid wastes in a suitable geological formation on land.

685. COULTER, J., 1982. A CRITICAL VIEW OF THE SYNROC SYNDROME, HABITAT AUSTRALIA, VOL. 10, APRIL, p26.
686. ENERGY RESOURCES OF AUSTRALIA, 1986. TOWARDS SAFE DISPOSAL OF SPENT (RANGER) URANIUM FUEL, [SUPPLEMENT TO ERA ANNUAL REPORT], ERA, SYDNEY, 16p.

Outlines developments in the field of high-level radioactive waste management, and examines what happens to (Ranger) uranium after its use in generating electricity. Describes interim storage of spent fuel, reprocessing, solidification, interim storage of high-level waste, transportation, encapsulation, waste

packaging and final storage in a repository. Claims that there is no technical or economic urgency to dispose of spent fuel and high-level waste and that interim storage presents no technical problems, and proposes technical advantages for delays in disposal. Provides figures for total spent fuel and high-level waste arising from national nuclear programmes and argues that the time scale involved in radiation from high-level waste and/or spent fuel presents no problems for the disposal technology. Includes a review of ERA customer country's research and development programmes into nuclear waste management.

687. FORD, J., 1983. URANIUM: WHAT A WASTE, THE AUSTRALIAN, 30 NOVEMBER, p9.

Outlines methods currently employed by some Western countries with large nuclear industries to hold high-level nuclear waste, and analyses alternative methods of dealing with waste in the longer term including reprocessing, storage in borosilicate glass, and SYNROC. Describes the SYNROC strategy in some detail, and discusses certain technical and financial constraints which militate against its wide-scale use.

688. FRY, R.M. AND MORISON, I.W., 1982. REGULATION OF THE MANAGEMENT OF WASTE FROM URANIUM MINING AND MILLING IN AUSTRALIA, IN MANAGEMENT OF WASTES FROM URANIUM MINING AND MILLING INTERNATIONAL SYMPOSIUM, 10-14 MAY 1982, ALBUQUERQUE, IAEA AND NEA (OECD), p41-54.

Outlines Commonwealth and state arrangements and current waste management regimes applying to uranium mining operations in various Australian states, with particular reference to the effectiveness of the two-level system in meeting operational and public safety requirements. Describes in more detail waste management in the Alligator Rivers Region including the role of the Supervising Scientist.

689. HARDY, G.J. AND COSTELLO, J.M., 1977. THE STATUS OF TECHNOLOGY AND MANAGEMENT OF HIGH LEVEL WASTE ARISING FROM SPENT NUCLEAR FUEL, ATOMIC ENERGY IN AUSTRALIA, VOL. 20, JULY, p8-13.

Describes the status of spent nuclear fuel reprocessing in major nuclear user countries, solidification and vitrification technology, and plans for ultimate disposal of solid wastes. Claims that the data presented substantiates the view that safe and appropriate technology exists for handling, solidification/vitrification and storage of high level

radioactive liquid wastes, and is being applied on a commercial scale.

690. HESPE, E.D. AND HARDY, C.J., 1972. MANAGEMENT OF WASTES FROM IRRADIATED NUCLEAR FUELS, IN PEASLEE, D.C. (ED), SYMPOSIUM PAPERS ON THE ROLE OF NUCLEAR ENERGY IN AUSTRALIA'S DEVELOPMENT, SOCIETY FOR SOCIAL RESPONSIBILITY IN SCIENCE, CANBERRA, p9.1-9.19.

Discusses management strategies for high level radioactive waste on a global basis and considers their implications for Australia. Reports that the AAEC does not believe that Australia needs to adopt a specific technical policy as yet for Australia, and mentions the AAEC's concern about public health and safety aspects of nuclear waste disposal. Outlines the criteria for a good waste storage site and claims that such a site could probably be found in Australia.

691. HOAD, B., 1976. THE HELLISH HORRORS OF WASTE, BULLETIN, 22 MAY, p17-18.

Discusses suggestions emanating from Japanese officials that if Australia engages in mining of uranium it should also engage in its enrichment, in recycling of spent fuel rods to extract uranium and plutonium, and in storage of nuclear wastes. Analyses the implications of this proposal, which the author regards as extremely hazardous in commercial and environmental terms.

692. KESSON, S.E. AND RINGWOOD, A.E., 1983. SAFE DISPOSAL OF SPENT NUCLEAR FUEL, RADIOACTIVE WASTE MANAGEMENT AND THE NUCLEAR FUEL CYCLE, 4, 2, p159-174.

693. MARTIN, B., 1985. CRACKS IN THE RINGWOOD SOLUTION, CHAIN REACTION, 40, DECEMBER 1984/JANUARY 1985, p32-36.

Evaluates claims made by Professor Ringwood both for the effectiveness of the SYNROC waste disposal method and its implications for uranium export, reprocessing and nuclear weapons proliferation. Argues that SYNROC is technically unproven, cannot guarantee successful long-term waste disposal, and cannot deal with the problems of temporary storage of spent fuel, human error and low level waste. Claims that Ringwood's support for exporting Australian uranium ignores the political impact that withholding would have on governments and on citizen movements. Argues that establishment of uranium enrichment and spent fuel

reprocessing industries in Australia would not, as claimed by Ringwood, restrain proliferation or provide employment benefits but would contribute to proliferation by making Australian nuclear weapons more likely, contributing to a regional arms race, and providing a prime target in wartime. Claims that Ringwood has focussed on technical issues of nuclear power and ignored social, political and economic issues such as the effects of the nuclear fuel cycle on local Aboriginal populations, on civil liberties, and the possibility of doing without nuclear power by promoting energy efficient and renewable energy technologies.

694. MCLEAN, H., 1976. IS NUCLEAR POWER WORTH THE RISK?, CATALYST, NO. 32, 14 APRIL, p6.

Discusses the problems associated with radioactive waste disposal and suggests that Australia should reject uranium mining for nuclear power and concentrate on developing solar energy.

695. MELOUNEY, H.F., 1972. RADIOACTIVE WASTES IN THE URANIUM MINING INDUSTRY, IN PEASLEE, D.C. (ED), SYMPOSIUM PAPERS ON THE ROLE OF NUCLEAR ENERGY IN AUSTRALIA'S DEVELOPMENT, SOCIETY FOR SOCIAL RESPONSIBILITY IN SCIENCE, CANBERRA, p8.1-8.35.

Discusses methods for handling radioactive and chemical wastes from uranium mining and milling. Identifies types and sources of waste, describes their radioactive and chemical components, and comments on regulations and standards for the uranium industry in other countries. Considers waste management at the Rum Jungle and Radium Hill uranium mines (briefly) and at Mary Kathleen. Considers the requirements of environmental impact statements, and claims that the Australian mining industry is aware of its responsibility to maintain economic growth while protecting the environment. Identifies competing and/or compatible land uses and appropriate pollution controls as important areas of concern for the Australian uranium industry.

696. OLIVIER, J-P., 1978. THE MANAGEMENT OF RADIOACTIVE WASTE: AN ANALYSIS, SOCIAL SURVEY, VOL. 27, FEBRUARY p20-28.

Explains in detail the management of high and low level radioactive waste. Outlines two different approaches, dilution and dispersal and isolation and containment. Admits that no demonstrable proof exists of the safety

of these methods, and briefly reviews research currently being undertaken into the problem. Summarises the conclusions of an OECD report into waste management, reviews proposals for future developments of long-term isolation, and records the OECD experts' optimism about finding a safe solution within this generation. Argues that it is the responsibility of government authorities to surmount the difficulties and provide the experts with the scientific and technical means as well as the political support they need to prove the validity of the proposed solutions.

697. RICHARDSON, M., 1978. AUST'S EMERGING REGIONAL N-WASTE ROLE, AUSTRALIAN FINANCIAL REVIEW, 9 OCTOBER, p1,4,9.

Presents the arguments of Richard Broinowski, a senior official in the Australian Department of Foreign Affairs, as to why Australia is seen as one of the most suitable sites for the storage of spent nuclear fuel, and disposal of high level radioactive wastes.

698. RINGWOOD, A.E., 1978. SAFE DISPOSAL OF HIGH LEVEL NUCLEAR REACTOR WASTES: A NEW STRATEGY, ANU PRESS, CANBERRA, 64p.

Argues that the currently-favoured technology of incorporating high-level radioactive waste in borosilicate glass, followed by deep burial in geological formations, is suspect because the glass is very likely to devitrify, greatly increasing the solubility of radioactive waste elements in groundwater. Claims that a new and improved strategy for safe disposal of radioactive waste is provided by a study of the geochemical means by which natural rocks and minerals retain the elements present in high level nuclear reactor wastes. The new strategy for immobilising radioactive wastes, SYNROC, is based directly upon these observed properties of natural minerals. Individual chapters analyse the properties of nuclear waste, discuss current means of waste disposal, outline the basic philosophy of the SYNROC approach and its mineralogical basis, describe the process of incorporating waste in SYNROC, and indicate further ways in which the SYNROC technology can be developed.

699. RINGWOOD, A.E., 1980. SAFETY IN DEPTH FOR NUCLEAR WASTE DISPOSAL, NEW SCIENTIST, 27 NOVEMBER, p574-575.

Reviews the current methods for disposal of high level radioactive waste, and the public's concern about the safety of large centralised mined repositories used for their storage. Proposes that nuclear waste disposal could be made safer and more acceptable by adopting an

alternative storage method, and presents a detailed explanation of this process which is based on encasing waste in synthetic rock (a technology developed at the Australian National University) and burying it in deep drill holes.

700. RINGWOOD, A.E., 1984. NUCLEAR WASTE IMMOBILIZATION IN SYNROC, COMMONWEALTH OF AUSTRALIA, NATIONAL ENERGY RESEARCH, DEVELOPMENT AND DEMONSTRATION PROGRAM, END OF GRANT REPORT NUMBER 307, CANBERRA, VARIOUS PAGINGS.

Part I provides an overview of SYNROC radioactive waste disposal, reviewing alternative methods of waste immobilisation, outlining the composition and mineralogy of SYNROC and its method of incorporating waste, and discussing production technology and geologic disposal strategy. Reviews the evidence regarding the effect of leaching and of radiation damage on SYNROC. Part II discusses international interest in SYNROC, which is claimed to have risen substantially since 1978, commenting on reaction in the United States, the United Kingdom, Japan, Germany, Canada and Italy. Includes a bibliography of foreign scientific papers and technical documents dealing with SYNROC. Part III briefly reviews a range of issues associated with the nuclear fuel cycle, including Australian uranium export policy, nuclear power in the Western Pacific Region, further development of the nuclear fuel cycle in Australia, and nuclear proliferation. Concludes that SYNROC allows disposal of high level radioactive waste with negligible hazards to the biosphere, permitting Australia to participate fully in the nuclear fuel cycle and so to both improve its safety and create new high-technology nuclear industries in Australia which would provide employment for tens of thousands of people.

701. ROBERTS, A., 1977. GENETIC RISK: THE NUCLEAR WASTES, ARENA, NO. 49, p18-30.

Reviews the immediate and long-term hazards to human health posed by the generation of nuclear power, and critically examines the effectiveness of existing technology which according to the Fraser government can handle, solidify and safely store high level radioactive waste. Argues that the failure to deal with the problem of nuclear waste reflects a failure by administrators, politicians and corporate executives to take it seriously and devote sufficient resources to the search for a solution.

702. WARNER, R.F. AND PICKUP, G., 1981. THE GEOMORPHOLOGY OF THE WET AND DRY TROPICS AND PROBLEMS ASSOCIATED WITH

THE STORAGE OF URANIUM TAILINGS IN NORTHERN AUSTRALIA,
IN URANIUM MILL TAILINGS MANAGEMENT: PROCEEDINGS OF
TWO NEA WORKSHOPS ORGANISED BY THE OECD NUCLEAR ENERGY
AGENCY AND THE US DEPARTMENT OF ENERGY, COLORADO STATE
UNIVERSITY, FORT COLLINS, USA, 28 OCTOBER 1981, OECD,
PARIS, p45-67.

Describes the principal landforms of the Alligator
Rivers Region Uranium Province, reviews work on
landforms and processes in this wet and dry tropical
environment, and discusses the kinds of
geomorphological hazards which might be encountered in
disposing of uranium tailings at Nabarlek, Ranger,
Koongarra and Jabiluka. Appendices include additional
environmental and technical information concerning
practices and proposals for the management and disposal
of tailings for these uranium projects, and a summary
of geomorphological considerations associated with the
siting of uranium mill tailings disposal dams and their
abandonment after decommissioning and rehabilitation.

Cross References

46, 93, 118, 139, 171, 174, 175, 191, 251, 255, 288,
322, 331, 709, 749, 752, 755, 757, 777

Worker Safety/Health Risks

703. ANON., 1976. NEWS FROM MARY K, URANIUM DEADLINE, 2, 4, p29.

Claims that the Mary Kathleen uranium mine was opened at the insistence of the Fraser government to outmanoeuvre the anti-uranium movement despite contrary advice from CRA's top executive. Claims that Mary Kathleen has been an economic failure and has cost the tax payer dearly. Reports company problems with high staff turnover due to workers dissatisfaction with safety procedures at the mine and the perceived hazards of uranium, and the prevalence of mobile single workers. Claims that CRA has not made any provision for compensation for former employees who suffer from cancer.

704. BRAITHWAITE, J. AND GRABOSKY, P., 1985. RADIATION REGULATION, IN OCCUPATIONAL HEALTH AND SAFETY ENFORCEMENT IN AUSTRALIA: A REPORT TO THE NATIONAL OCCUPATIONAL HEALTH AND SAFETY COMMISSION, AUSTRALIAN INSTITUTE OF CRIMINOLOGY, CANBERRA, p54-69.

Identifies and discusses occupational health and safety concerns relating to exposure of workers to radiation. Lists the five main areas of radiation regulation: the mining of uranium and other minerals; the use of uranium in nuclear reactors; the transport of radioactive materials; commercial, medical or scientific use; and disposal of used materials. Reviews the part played by state mines departments, the AAEC and state health authorities' radiation control branches in radiation regulation.

705. BYRNE, J., 1975. AUST SETS RIGID RADIATION CODE TO PROTECT MINERS, AUSTRALIAN FINANCIAL REVIEW, 9 OCTOBER, p10-11.

Outlines causal relationship between radon gas from uranium ore and lung cancer, notes threat of radiation to uranium miners, and outlines the modern measures taken to prevent radiation health hazards. Reviews statistical occurrence of lung cancer among uranium miners and favourably compares Australian codes of practice on radiation protection in mining and milling radioactive ores with world standards. Outlines the health and safety precautions to be taken in planned NT uranium mines.

706. CALDICOTT, H., 1978. WHAT YOU SHOULD KNOW ABOUT URANIUM, INDEPENDENT AUSTRALIAN, 3,1, p30-36.

Discusses in detail the serious health risks which the author believes are associated with the whole nuclear fuel cycle, and exhorts members of the public who feel worried about this issue to take some positive action. Comments on the media's apparent lack of interest in developments in nuclear power generation compared with its coverage of French nuclear tests in the Pacific and Gough Whitlam's court battle to prevent them, and claims that this is because the media is financed and therefore controlled by multinationals including those mining companies which exploit Australian uranium. Outlines the health risks associated with each stage of the nuclear fuel cycle, and stresses the insidious, long term hereditary effects of radiation.

707. CAMPAIGN AGAINST NUCLEAR POWER, 1979. RADIATION RISK IGNORED, CANP NEWSLETTER, NO. 54, DECEMBER, p3.

708. CARTER, M.W., CARRUTHERS, E. AND BUTTON, J.C.E., 1976. HEALTH AND SAFETY RECORD OF THE NUCLEAR INDUSTRY, ATOMIC ENERGY IN AUSTRALIA, 19, 2, p9-18.

Reviews the health and safety record of the international nuclear industry, favourably compares it with that of other industries and includes an examination of uranium mineworkers' health records.

709. COSTELLO, J.M., 1977. MANAGEMENT OF WASTES CONTAINING RADIOACTIVITY FROM MINING AND MILLING OF URANIUM ORES IN NORTHERN AUSTRALIA, ATOMIC ENERGY IN AUSTRALIA, 20, 4, p2-9.

Claims that the hazards associated with mining and milling of uranium do not justify any decision to stop uranium mining in Australia. Outlines the sources and nature of radioactive wastes from mining and milling processes, and reviews proposals for waste management in the Ranger operation including some suggested ongoing environmental studies.

710. FRY, R.M., 1975. RADIATION HAZARDS IN URANIUM MINING AND MILLING, AUSTRALIAN ATOMIC ENERGY COMMISSION, LUCAS HEIGHTS, [SYDNEY], 23p.

Examines each of the radiological problems that arise in the mining and milling of uranium and explains their scientific background. Reviews studies on the incidence of lung cancer among underground uranium

miners, and claims that the radiological safety of miners, mill workers and members of the public can be assured if the requirements of the Australian Code of Practice on Radiological Protection in the Mining and Milling of Radioactive Ores 1975 are adhered to. Outlines the history of uranium mining and includes a number of tables relevant to radiation.

711. GROVER, J., 1978. COMMENTS ON 'URANIUM: HEALTH RISKS FROM A NUCLEAR POWER INDUSTRY', MEDICAL JOURNAL OF AUSTRALIA, VOL. 2, 26 AUGUST, p194-196.

Presents a critique of Professor Kerr's paper on the health risks of the nuclear industry (see No. 716), and claims that charges made against nuclear power in general are emotional, exaggerated and untrue. Argues in favour of nuclear energy in terms of its safety record, its environmentally safe operation, and its economy.

712. HALLAM, J.R., 1979. WORKERS' HEALTH IN URANIUM MINES: THE RADON HAZARD, HABITAT AUSTRALIA, VOL. 7, APRIL, p22-24.

Cites research findings which provide evidence of a causal relationship between lung cancer and radon gas, and by inference between work in uranium mines and risk of the disease. Explains the characteristics and effects of radon, reviews contradictory figures for radiation levels in Australian uranium mines, and the existing codes of practice for mineworkers' protection from the effects of radiation. Poses a number of questions about radiation risks and mining which the author claims the mining companies and the Commonwealth government have yet to answer.

713. HICKIE, D., 1979. RADIATION RISKS IGNORED IN NT URANIUM MINES, NATIONAL TIMES, 2-8 DECEMBER, p12.

Reviews the findings of a report on attitudes towards safety at new uranium mines in the NT, commissioned by the Federated Miscellaneous Workers Union of Australia and prepared by occupational hygienist Noel Arnold. The report concluded that the mineworkers and management have an 'astonishingly nonchalant attitude' to all procedures to safeguard health in this relatively unknown and hazardous industry, and expressed concern that although no evidence of serious radiation doses was found among the employees this lack of concern constituted a grave danger.

714. HOLY, Z.J., 1981. RADIOLOGICAL PROTECTION STANDARDS AND ENVIRONMENTAL ENQUIRIES, RADIATION PROTECTION IN AUSTRALIA, NO. 1/81, p2.1-2.11.

Reviews recent public inquiries into aspects of the nuclear power industry and the ensuing debate in the United States, the United Kingdom, Australia and elsewhere. Notes that evidence and response during the hearings indicated public disquiet about radiological standards, and reports that, although most hearings endorsed the current standards and gauged the associated health risks as acceptable, some questions remain unanswered, especially those associated with low-level, long-term exposures. States that further research is required to allay public misgivings on these questions.

715. JOHNSTON, A., 1987. RADIATION EXPOSURE OF MEMBERS OF THE PUBLIC RESULTING FROM OPERATION OF THE RANGER URANIUM MINE, TECHNICAL MEMORANDUM 20, OFFICE OF SUPERVISING SCIENTIST FOR THE ALLIGATOR RIVERS REGION, AGPS, CANBERRA, 18p.

Describes the climatic, aquatic and demographic features of the Alligator Rivers Region that are relevant to the assessment of radiation exposure to the public resulting from operation of the Ranger uranium mine. The specific locations or activities at the mine site that act as sources for the transport of radionuclides into the environment are identified, and the steps taken to minimise such transport are summarised. Critical groups for the two principal transport pathways, atmospheric and surface water transport, are identified. Data on atmospheric transport of radon and long-lived nuclides in dust are reviewed, and modelling of the radiation exposure resulting from release of radionuclides into surface waters is described. For current operation of the Ranger mine and mill, radiation exposure via the atmospheric pathway dominates. The critical group's exposure is estimated to be one tenth of the maximum recommended by the International Committee on Radiation Protection.

716. KERR, C., 1977. URANIUM: HEALTH RISKS FROM A NUCLEAR POWER INDUSTRY, MEDICAL JOURNAL OF AUSTRALIA, 2, 29, OCTOBER, p583-586.

Discusses health risks associated with all stages of the nuclear fuel cycle, of particular concern since the Australian government's decision to proceed with full-scale export of uranium. Discusses serious consequences of reactor accidents, permissible radiation doses for humans, links between radiation and

cancer, codes of practice for mineworkers' safety, and the particular hazards facing uranium mineworkers in the NT. Concludes that much greater efforts are required to find safe solutions to these risks.

717. KERR, C., 1980. HAZARDS TO THE HEALTH OF URANIUM WORKERS AND THE REGIONAL POPULATION, IN HARRIS, S. (ED), SOCIAL AND ENVIRONMENTAL CHOICE: THE IMPACT OF URANIUM MINING IN THE NORTHERN TERRITORY, CRES MONOGRAPH NO. 3, CENTRE FOR RESOURCE AND ENVIRONMENTAL STUDIES, ANU, CANBERRA, p108-121.

Identifies two sets of issues surrounding the health of uranium workers: those relating to identifying hazards and preventing harmful consequences; and those relating to laws, regulations, codes of practice and systems of monitoring and supervision and their practical application. Argues that it is ineffective to have legislation, codes of practice and a supervisory system if these do not involve the real targets of all this concern, the uranium workers. Regrets the Fox Commission's greater emphasis on occupational hazards and systems for controlling rather than on the establishment of safe practices covering routine aspects of mining and milling, and recommends greater participation by all relevant parties in devising safe practices. Discusses current views on the health hazards associated with low level radiation, and questions the standards, fairness and ease of implementation of the Code of Practice. Identifies radon gas as the greatest radiation danger at the mine site and discusses the monitoring and control of air quality, but notes that silicosis and occupational deafness are also hazards of uranium mining. Refers to hazards of water borne radioactive contaminants and the problem of mosquitoes breeding in stagnant water near mine sites. Expresses concern about the impact of uranium mining on the culture, general wellbeing and health status of Aborigines.

718. LAHEY, J., 1983. DOWN ROXBY, AGE, 5 NOVEMBER, SUPPLEMENT, p1,2.

Describes a visit to Roxby Downs by a group of journalists. Outlines Roxby's mineral resources and the mining methods to be employed. The author questions mineworkers about levels of radioactivity, and reports their view that, contrary to public opinion, the mine presents no danger to the workers or to the local population. Describes the safety procedures and monitoring methods employed in the mine to reduce radiation dangers, and reports that all of the visitors recorded zero radioactivity.

719. LEACH, V.A. AND LOKAN, K.H., 1979. MONITORING EMPLOYEE EXPOSURE TO RADON AND ITS DAUGHTERS IN URANIUM MINES, TECHNICAL REPORT 011, AUSTRALIAN RADIATION LABORATORIES, MELBOURNE, 48p.

720. MARSHMAN, I.W., 1983. SUMMARISED RESULTS FROM A RADIATION MONITORING PROGRAMME AT AN AUSTRALIAN URANIUM ORE PROCESSING PLANT, RADIATION PROTECTION IN AUSTRALIA, 1, 3, p105-112.

Presents data from a twelve-month monitoring programme for radiation protection purposes at Queensland Mines Ltd's uranium ore processing plant at Nabarlek, and compares results with the Australian government's Code of Practice on Radiation Protection in the Mining and Milling of Radioactive Ores 1980. Explains the process of uranium extraction used at Nabarlek and presents monitoring results of external radiation, radon daughter concentration, radon in air, radioactive material concentration in air and calciner stack emissions. Draws some conclusions from the results and their comparison with Code of Practice limits, which indicate that the major radiation hazard encountered is from airborne dust and that employees total annual body dose is below the limit set for members of the public.

721. MCKAY, T.R., MCNALLY, P. AND KVASNICKA, J., 1984. OVERVIEW OF RECENT STUDIES ON RADIUM IN MUSSELS IN THE ALLIGATOR RIVERS REGION, NORTHERN TERRITORY DEPARTMENT OF MINES AND ENERGY, DARWIN, 15p.

Reviews the recent studies on radium in mussels in the Alligator Rivers Region. Notes that investigations carried out downstream from the Ranger operation indicated insufficient health hazard from radium to warrant the issue of any special health warning, reports that recent studies have not revealed any increased radium levels, and cites evidence to show that no new source of radionuclides in the Region has been introduced by the mining activities. Includes a number of tables and figures providing relevant statistical data.

722. MCLAUGHLIN, D., 1985. PROBLEMS OF COMMUNICATING RADIATION DOSES TO ABORIGINAL MEMBERS OF THE PUBLIC IN THE ALLIGATOR RIVERS REGION, RADIATION PROTECTION IN AUSTRALIA, 3,2, p67-70.

Discusses the problems of communicating radiation dose levels to Aborigines living in the Alligator Rivers Region. Notes Aborigines' vulnerability to ionising radiation through eating bush foods, reports

scientists' findings on radionuclide concentrations in freshwater mussels, discusses whether uranium mining is responsible for these high levels, and concludes that scientists need to learn how to 'talk' to the general public in order that their protective standards and measures appear meaningful and become effective.

723. MCNAMARA, P., 1983. THE PROTECTION AND COMPENSATION OF WORKERS EMPLOYED IN THE URANIUM MINING INDUSTRY IN AUSTRALIA, 53RD ANZAAS CONGRESS, 16-20 MAY 1983, PERTH, 43p, mf.

Outlines the health and safety hazards to uranium mine and mill workers. Examines the extent to which the law provides for protection of workers from avoidable injuries peculiar to uranium, and the issue of whether existing legal compensatory mechanisms provide for the just and equitable compensation of workers who sustain diseases which have been shown to be associated with employment in the uranium industry. Identifies two reasons why legal policy-makers should carefully consider this issue: first because mineworkers are less able to choose to abstain from employment in the uranium industry due to the economic recession, and second because the legal standards of what constitutes safe radiation are under challenge from within the medical profession. States that a comprehensive employee education programme covering the risks, protective measures and financial and health consequences of employment in the uranium industry should be a legal requirement. Argues in favour of a compensation fund to provide for injuries induced by radiation based on the grounds that claims may be made independently of proof of fault. Examines the merits and demerits of such a scheme, claims it would be incompatible with the approach of common law to accidental injury compensation and would be politically difficult to impose on the Australian uranium industry, and discusses some less 'thoroughgoing' reforms. Includes a detailed historical review of the Australian uranium industry and the methods of uranium mining and milling.

724. ROSEN, R., 1987. OCCUPATIONAL HEALTH AND SAFETY INSPECTION OF THE RANGER URANIUM MINE, REPORT TO COMMISSIONER V.J. CONNELL OF THE AUSTRALIAN CONCILIATION AND ARBITRATION COMMISSION, COMMONWEALTH GOVERNMENT PRINTER, 157p.

Presents the results of an inspection of the Ranger uranium mine carried out under the Conciliation and

Arbitration Act as a result of a number of disputes between Ranger Uranium Mines Pty Ltd (RUM) and the Federated Miscellaneous Workers Union in conjunction with the Australasian Society of Engineers. Chapters 3-7 describe the Ranger site and discuss legislative requirements and supervision, previous health and safety surveys at Ranger, RUM's safety programme, and the views expressed by the unions. Chapters 8-15 present the results of the investigation, and make relevant recommendations under the following headings: chemical hazards, noise, heat stress, radiation protection, mining operations, industrial housekeeping and engineering safeguards, ergonomics and safety systems, and occupational health services. The investigation found no evidence of any major violation of safety principles, but observed shortcomings in relation to communication within the organisation and also in relation to co-ordination and implementation of components of the health and safety programme. The Report recommends expansion of RUM's occupational health and safety programme, more effective integration of its various elements, improvements in channels of communication, and a range of more specific initiatives related to the various areas examined in chapters 8-15.

725. STEWART, J.R., 1970. RADIATION HAZARDS IN URANIUM MINING IN AUSTRALIA, IN SHAPIRO, H.A. (ED), PNEUMOCONIOSIS: PROCEEDINGS OF THE INTERNATIONAL CONFERENCE, JOHANNESBURG 1969, OXFORD UNIVERSITY PRESS, CAPE TOWN, p558-560.

Briefly outlines the original (1965) Australian Code of Practice, drawn up to cover uranium mining and milling operations and based on the 1955 Report of the International Commission on Radiological Protection. Reviews the results obtained from surveys of radiation levels at uranium mines at Rum Jungle, Mary Kathleen, Radium Hill and in the South Alligator Region. Notes that the new Australian Code which is nearing completion includes positive guidance on a number of aspects which were originally determined by individual competent authorities (radon concentrations, action levels and medical aspects), and describes some further protection measures which might be required in future if mining is underground rather than open cut.

726. SUPERVISING SCIENTIST FOR THE ALLIGATOR RIVERS REGION, 1983. REPORT ON RADIATION SAFETY STANDARDS, PRACTICES AND PROCEDURES FOR URANIUM MILL PRODUCT DRYING AND PACKING OPERATIONS CONDUCTED BY ERA LTD AT JABIRU, NORTHERN

TERRITORY, OFFICE OF THE SUPERVISING SCIENTIST, SYDNEY,
35p.

Text of the Supervising Scientist's report on radiation safety standards, practices and procedures for uranium mill product drying and packaging (PDP) operations conducted by ERA Ltd at Jabiru. Outlines the process and associated problem areas, and reviews radiation protection philosophy, standards and regulations. Details radiation protection practice in the Ranger PDP area, comments on three significant incidents which have occurred in that area, outlines procedures for monitoring, recording and reporting, and describes action by Ranger to overcome dust problems. Lists the Supervising Scientist's reservations about the quality of radiation protection achieved, and reports that Ranger and NT supervising bodies have made the necessary improvements. Discusses the ALARA (As Low As Reasonably Achievable) program, and its implementation in a revised Commonwealth Code on Radiation Protection Practices and in amendments to NT law.

Cross References

114, 137, 151, 163, 171, 179, 197, 198, 314, 315, 319,
321, 326, 332, 380, 392, 475, 489, 490, 510, 624, 631,
730, 813

Environmental Impact Statements

This section annotates all available Environmental Impact Statements for Australian uranium projects and any reviews of these Statements by government departments. It is organised by project in alphabetical order; in each case the Draft Environmental Impact Statement (DEIS) is annotated first, then the Final Environmental Impact Statement (FEIS), then any government reviews.

Ben Lomond:

727. MINATOME AUSTRALIA PTY LIMITED, 1983. BEN LOMOND PROJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT, MINATOME AUSTRALIA PTY LIMITED, SYDNEY, 2 VOLS, VARIOUS PAGINGS.

Volume 1 contains the text, Volume 2 consists of supporting statistical tables, maps and figures. Volume 1 provides background information relevant to the proposed project (84p), outlining its development to date, analysing uranium and molybdenum markets, describing the existing physical and regional environment (population, infrastructure and land use), and providing results of archeological and anthropological surveys. Outlines the facilities proposed for the project and provides details of construction, operations and rehabilitation (136p). Describes expected environmental impacts and proposals for monitoring and dealing with these (15p), and provides a brief inventory of environmental assets in the project area and discusses design constraints it will face and design criteria for pollution control (15p). Analyses the expected impact of the project on employment, the national income and the Queensland and Townsville economies.

728. TOTAL MINING AUSTRALIA PTY LTD., 1984. BEN LOMOND PROJECT: FINAL ENVIRONMENTAL IMPACT STATEMENT, SYDNEY, 2 VOLS, VARIOUS PAGINGS.

Follows the structure of the DEIS and covers the same subject areas (see previous entry), with additional information being provided in certain areas, particularly on applicable codes and standards, on the regional environment and on water management and waste systems. Volume I reproduces all public comments on the DEIS (in unedited form) and Total Mining Australia's replies to these comments (159p).

Honeymoon:

729. MINES ADMINISTRATION PTY LTD., 1981. HONEYMOON PROJECT: FINAL ENVIRONMENTAL IMPACT STATEMENT, ADEC-AIDE, VARIOUS PAGINGS.

Consists of the DEIS, a summary of public comments on it and Mines Administration Pty Ltd's response to those comments. Discusses the existing physical environment and infrastructure and social and pastoral activity in the region (35p), provides details regarding the proposed project including mining and processing technology, safety measures and economic analysis (27p), and indicates likely impacts on the physical environment and on pastoral and social activity (12p). Appendices deal with radiological aspects, climate, flora, fauna and an archaeological survey of the project area. Lists submissions received on the DEIS and responds to general and specific issues raised in these submissions (13p).

730. SOUTH AUSTRALIAN DEPARTMENT FOR THE ENVIRONMENT, ASSESSMENT SECTION, 1981. ASSESSMENT OF THE ENVIRONMENTAL IMPACT OF THE HONEYMOON PROJECT, SADE, ADELAIDE, vii + 44p.

Assesses the acceptability of the plans outlined by Mines Administration Pty Ltd. in its DEIS for the Honeymoon project in terms of required environmental objectives and standards. Briefly outlines the project proposal and summarises public submissions received on the DEIS, listing issues they raised both in relation to uranium development in general and Honeymoon in particular. Offers an assessment of the likely environmental impact of the project based partly on confidential information used in preparing the DEIS but not included in it. Deals with the in situ leaching method proposed for Honeymoon, and concludes that it has several environmental benefits over more conventional mining techniques. Briefly describes the existing environment and outlines the impacts likely to result from mining and associated activities, concluding that the project is environmentally acceptable subject to implementation of appropriate safeguards and regulations. Discusses potential hazards associated with radiation from mining and milling operations, and concludes that providing a suitable monitoring programme is adopted the risk to employees, the public and the environment should be acceptable.

Jabiluka:

731. PANCONTINENTAL MINING LIMITED, 1977. JABILUKA PROJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT, PANCONTINENTAL MINING LIMITED, SYDNEY, 179p.

Provides a justification for the Jabiluka project in terms of its contribution to the Northern Territory and Australian economies and by listing expected benefits and costs in economic, social, political and environmental terms (12p). Provides information on the existing physical environment (38p), and on the human environment (6p). Outlines the project proposal (70p), indicating the methods planned for mining and milling of ore, and dealing with construction, tailings disposal, water management and community development. Discusses alternative approaches considered for mining, milling, tailings disposal and water management (13p), and assesses the likely impact of the project on the physical environment and on social activity in the region (17p). Outlines the relevance of the Ranger Inquiry recommendations to the project proposal.

732. PANCONTINENTAL MINING LIMITED, 1979. THE JABILUKA PROJECT ENVIRONMENTAL IMPACT STATEMENT, PANCONTINENTAL MINING LIMITED, SYDNEY, VARIOUS PAGINGS.

In its DEIS, Pancontinental proposed open cut mining at Jabiluka. Because of comments made during the public review of the DEIS, it re-examined the alternative of underground mining and, in the light of further technical studies, concluded that underground mining was the preferred method. The FEIS therefore details this method and uses it as the basis of a revised proposal.

Volume 1 provides details of the proposed project (126p), dealing with construction, mining, ore treatment, water management, services, transport and rehabilitation. It also sets out the open pit alternative (76p). Volume 2 examines the existing physical environment (82p), and also analyses the social environment (157p), dealing with the history of Aboriginal occupation, contact with Europeans, Aboriginal society and culture, and the political economy of the region. Discusses the project's likely impact on the physical environment and proposed monitoring arrangements (48p). Assesses its potential effects on the national and Territory economies, on the political economy of the local region, and its social

and economic impact on Aboriginal people (100p). Volume 3 contains a cross-index to the DEIS, a list of source materials, and Pancontinental's response to public comments on its DEIS (264p).

Koongarra:

733. NORANDA AUSTRALIA LTD., 1978. KOONGARRA PROJECT:
DRAFT ENVIRONMENTAL IMPACT STATEMENT, NORANDA
AUSTRALIA LTD., MELBOURNE, DECEMBER, VARIOUS
PAGINGS.

Sections One and Two provide an introduction to the project, set out its objectives, and provide a summary of the DEIS. Section Three describes the existing physical environment (26p) and discusses the human environment and Aboriginal culture (5p). Section Four provides a description of the proposed project (47p), while Section Five considers alternative approaches to various aspects of the project and summarises their advantages and disadvantages. Section Six (26p) discusses environmental impact assessment and management. The DEIS was supported by two volumes of additional data (not sighted) which included back-up information and reports by specialists and consultants.

734. NORANDA AUSTRALIA LTD., 1979. KOONGARRA PROJECT:
SUPPLEMENT TO THE DRAFT ENVIRONMENTAL IMPACT STATEMENT,
MELBOURNE, NOVEMBER, VARIOUS PAGINGS.

Noranda submitted its DEIS together with this Supplement as its FEIS. The Supplement was prepared after receipt of a large number of submissions on the DEIS. It includes a very much more detailed assessment of the social environment (220p), which examines Aboriginal social organisation, government policies, land rights, Aboriginal communities in the region, the outstation movement, and Aboriginal health, social welfare, education, training, employment and culture, and assesses the likely impact of the project in these areas. Section Three reproduces reports by specialists and consultants on specific aspects of the project (e.g. road access, tailings disposal, noise, sewage disposal) (152p). Section 4 consists of Noranda's response to the comments received on the DEIS (260p), while Section 5 reproduces the comments themselves (186p).

735. DEPARTMENT OF HOME AFFAIRS AND ENVIRONMENT, 1981.
ENVIRONMENTAL ASSESSMENT REPORT, KOONGARRA URANIUM

PROJECT, DEPARTMENT OF HOME AFFAIRS AND ENVIRONMENT,
CANBERRA, FEBRUARY, 62p.

Reviews the FEIS submitted by Noranda Australia Ltd. and the proposal by Denison Australia (which purchased Koongarra from Noranda) to develop the Koongarra uranium deposit. Assesses the impact of the project on the biophysical environment and considers the Company's monitoring proposals. Examines the likely effects on the social environment and particularly on Aboriginal people living in the area. Concludes that the physical environmental consequences of the proposal will fall within 'acceptable and manageable' limits and that the major impacts can be controlled through environmental requirements similar to those established for other uranium projects in the Region. States that the Company has not undertaken a comprehensive examination of possible impacts on local Aboriginal people, and that it is consequently not possible to determine these impacts or to set any 'social environmental requirements'. Recommends that government authorities should consult with mining interests and community groups with a view to preparing guidelines for future social impact assessments in relation to proposed mining projects.

736. DEPARTMENT OF HOME AFFAIRS AND ENVIRONMENT, 1981.
ENVIRONMENTAL ASSESSMENT REPORT: REVISED PROPOSALS
FOR THE KOONGARRA URANIUM PROJECT, DEPARTMENT OF HOME
AFFAIRS AND THE ENVIRONMENT, CANBERRA, AUGUST, 22p.

Outlines and assesses proposals by Denison Australia to modify its proposed Koongarra uranium project. The modifications have been proposed following consultation with local Aborigines, comments on the FEIS, and further exploration and planning work by the Company. They include the relocation of all facilities away from the escarpment, rapid mining and stockpiling of ore prior to milling, complete backfilling of the open pit, a policy of no release of water, and provision for mining the Koongarra No. 2 orebody. Concludes that the modifications lessen the impact of the project on the landscape, Aboriginal art sites, and air and water quality and that the environmental consequences of the project will fall within 'acceptable and manageable' limits, though it states that in some areas the Company has provided inadequate information to allow a comprehensive assessment of environmental impacts. States that Denison has not carried out a comprehensive social impact assessment and that it is not possible to recommend appropriate social environmental requirements.

Nabarlek:

737. QUEENSLAND MINES LIMITED, 1977. NABARLEK URANIUM PROJECT ARNHAM LAND - NORTHERN TERRITORY, DRAFT ENVIRONMENTAL IMPACT STATEMENT, QUEENSLAND MINES LIMITED, DECEMBER, VARIOUS PAGINGS.

Provides a description of the proposed project (36p) dealing with geology, mining, ore treatment, construction, provision of services, water management and decommissioning and rehabilitation. Considers alternative approaches to mining, treatment, transport and accommodation, and explains the reasons for their rejection (10p). Describes the existing physical, human and cultural environment (35p), including geology, geophysical and geochemical environment, soils, land system, climate, hydrology, vegetation, fauna and the 'existing Aboriginal environment'. Outlines the expected impact of the project on the physical and human environment and proposed methods of dealing with these (32p).

738. QUEENSLAND MINES LTD., 1979. NABARLEK URANIUM PROJECT ARNHAM LAND - NORTHERN TERRITORY : FINAL ENVIRONMENTAL IMPACT STATEMENT, QUEENSLAND MINES LTD., JANUARY, VARIOUS PAGINGS.

The first four sections follow the same format as the DEIS, expanding the information provided on a description of the project (54p), alternative approaches to project development and the reasons for their rejection (13p), the existing environment (50p) and the expected impacts of the project and methods of dealing with these (53p). The remaining sections provide a summary of written comments received by QML on its DEIS and either give QML's reasons for rejecting these, indicate how the comments are dealt with in the FEIS, or state how the issues raised will be dealt with as the project develops.

Ranger:

739. RANGER URANIUM MINES PTY LTD., 1975. ENVIRONMENTAL IMPACT STATEMENT FEBRUARY, 1974 AND SUPPLEMENTS NO. 1 AND NO. 2, MAY 1975, RANGER URANIUM MINES PTY LTD., SYDNEY, VARIOUS PAGINGS.

The February 1974 EIS consists of 90 pages of text supplemented by a large quantity of maps, illustrations, diagrams and photographs. It describes

the existing physical environment (40p), and deals more briefly (3p) with Aboriginal culture and the Aboriginal community at Jabiru. An Operations Statement (21p) provides details on the proposed project, discussing exploration, mining, ore treatment, tailings retention, construction, water balance and services. Expected environmental impacts are discussed and environmental management proposals outlined (17p). Supplement No. 1 (45p) provides additional information in each of the three general areas dealt with by the EIS, in response to comments on the EIS by government agencies and to a number of changes which had occurred since 1974.

Supplement No. 2 (11p) briefly discusses the implications of doubling output from the proposed project in terms of the earlier operations Statements and the Impact Assessments and Environmental Management proposals.

Roxby Downs:

740. ROXBY MANAGEMENT SERVICES PTY. LTD., 1982. OLYMPIC DAM PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT [PREPARED FOR ROXBY MANAGEMENT SERVICES PTY LTD. BY KINHILL STEARNS ROGER JOINT VENTURE], ROXBY MANAGEMENT SERVICES PTY. LTD., ADELAIDE, VARIOUS PAGINGS.

Provides a description of the proposed project, dealing with mining, ore treatment, effluents and emissions, infrastructure and township, and outlining alternatives considered in each of these areas and explaining why these were rejected (63p). Examines the existing terrestrial environment and the project's likely impact on it (68p), and outlines current land use patterns and indicates likely land use impacts (23p). Provides the results of archaeological and anthropological surveys of the project area (42p). Individual chapters provide more detailed analyses of the underground environment (27p), the tailings retention system (22p), wastes and emissions (43p), radiation assessment (47p), project infrastructure (72p) and social effects and town design (39p). The final chapter examines economic effects of the construction and operational phases on the Northern Region of South Australia and on the state and national economies (27p).

741. ROXBY MANAGEMENT SERVICES PTY. LTD., 1983. OLYMPIC DAM PROJECT : SUPPLEMENT TO THE DRAFT ENVIRONMENTAL IMPACT STATEMENT, [PREPARED FOR ROXBY MANAGEMENT SERVICES PTY

LTD BY KINHILL STEARNS PTY. LTD.], ROXBY MANAGEMENT SERVICES PTY. LTD., ADELAIDE, VARIOUS PAGINGS.

The Supplement was submitted with the DEIS as the FEIS. The main body of the Supplement (103p) is a response to public comments on the DEIS, and each chapter brings together related comments with an introductory section indicating the issues raised. Chapter 2 covers project description and justification, Chapter 3 the tailings retention system, Chapter 4 radiation and other emissions, and Chapter 5 indirect impacts beyond the Project area and infrastructure corridors. Chapter 6 addresses comments in relation to the mound springs and water supply and summarises additional ecological data on mound springs. Chapter 7 comprises responses to comments relating to a range of other issues, including soil salinity, infrastructure corridors, social effects and town design, and the Aboriginal environment. Chapter 8 discusses the environmental management approach being adopted by the Joint Venturers. Appendices include a list of public submissions and a summary of the points raised by each (12p), details of the commitments by the Joint Venturers in respect of mitigation measures to limit the environmental impact of the project (24p), and a proposal for a pilot processing plant which would operate at Olympic Dam for 12 months (16p).

742. SOUTH AUSTRALIA, DEPARTMENT OF ENVIRONMENT AND PLANNING, 1983. OLYMPIC DAM PROJECT, ASSESSMENT OF THE ENVIRONMENTAL IMPACT, DEPARTMENT OF ENVIRONMENT AND PLANNING, [ADELAIDE], 198p.

Outlines the proposed project, briefly describes the existing physical and social environment and analyses the project's likely impact on the biophysical environment and on heritage in the project area. Discusses project infrastructure, the impact associated with the construction camp and township, social issues within the town and economic costs and benefits to the community and the state. Summarises public comments on the DEIS. Concludes that the proposal described in the DEIS is in the feasibility stage and that consequently much of the detail concerning location and design of facilities and project operations is unknown. States that while the DEIS and Supplement have adequately identified the manner and nature of potential environmental impacts given the 'conceptual status of the proposal', ongoing assessment will be required to determine and manage detailed effects on the environment. Makes a series of recommendations relating to action by both the developers and the South Australian government to ensure that this occurs.

Yeelirrie:

743. WESTERN MINING CORPORATION LIMITED, 1978. YEELIRRIE URANIUM PROJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT AND ENVIRONMENTAL REVIEW AND MANAGEMENT PROGRAMME, WESTERN MINING CORPORATION LTD., JUNE, 3 VOLS., VARIOUS PAGINGS.

Volume 1 examines the existing physical environment (88p plus maps and diagrams) including geology, hydrology, climate, flora and fauna, radiological quality and Aboriginal sites, and provides a briefer analysis (10p) of the human environment. Outlines preferred options for mining, ore treatment, tailings disposal, transport, township and water supplies, indicates alternative options and explains why these were not preferred (92p). Assesses the impact of the project on the physical and human environments (132p), and outlines proposed environmental management and safeguards programmes (23p).

Two volumes of appendices reproduce consultants' reports on specific aspects of the project. These include surveys of groundwater and hydrology, meteorology, evaporation and flood estimation, vegetation and fauna, soils and Aboriginal sites, and three baseline environmental studies carried out by the AAEC.

744. WESTERN MINING CORPORATION, 1979. YEELIRRIE URANIUM PROJECT: SUPPLEMENT TO THE DRAFT ENVIRONMENTAL IMPACT STATEMENT AND ENVIRONMENTAL REVIEW AND MANAGEMENT PROGRAMME, PERTH, JANUARY, VARIOUS PAGINGS.

Western Mining Corporation (WMC) submitted its DEIS, together with this Supplement, as its FEIS. The Supplement concerns matters raised in submissions made by various individuals and organisations on the DEIS. Section I deals with comments which related to radiological aspects of WMC's proposal or with the adequacy of national and international safety standards on which it was based (15p). Section II deals with tailings disposal aspects of the proposal (10p), while Section III is a revised version of a DEIS Appendix dealing with emission of radon during mining and milling (36p). Section IV presents WMC's detailed point-by-point responses to matters raised in submissions (211p), and Section V reproduces in full the 28 submissions which were made.

745. WESTERN AUSTRALIA, ENVIRONMENTAL PROTECTION AUTHORITY, DEPARTMENT OF CONSERVATION AND ENVIRONMENT, 1979.

YEELIRRIE URANIUM PROPOSAL BY WESTERN MINING
CORPORATION, REPORTS AND RECOMMENDATIONS, BULLETIN NO.
53, DEPARTMENT OF CONSERVATION AND ENVIRONMENT, PERTH,
51p.

Reports the results of the Environmental Protection Authority's study of the proposed Yeelirrie development. Analyses the Western Mining Corporation proposal as set out in its DEIS and Environmental Review and Management Programme (ERMP), and provides an environmental assessment of various aspects of the proposed project, including tailings disposal, radiation protection, rehabilitation and Aboriginal sites. Concludes that the DEIS/ERMP is 'vague and deficient' in certain areas, recommends a series of changes to WMC's proposal, and states that if these are implemented the Authority would see no environmental objection to uranium mining at Yeelirrie. Appendices review public submissions received on the Yeelirrie DEIS/ERMP and summarise submissions of state government departments.

PART EIGHT

NUCLEAR PROLIFERATION AND NUCLEAR SAFEGUARDS

Nuclear Proliferation

746. ANON., 1974. AUSTRALIAN URANIUM MADE ATOMIC BOMBS, SLOW BURN, NO. 1, SEPTEMBER, p4.

Estimates past, planned and potential exports of Australian uranium and converts the relevant tonnages of uranium oxide into equivalent potential and product in terms of plutonium, depleted uranium and the plutonium this could generate in fast breeder reactors, 'Nagasaki size' atomic bombs and nuclear warheads.

747. ANON., 1975. AUSTRALIA AND THE IAEA, CURRENT NOTES ON INTERNATIONAL AFFAIRS, VOL. 41, MARCH, p104-113.

Reviews the work of the International Atomic Energy Agency (IAEA) and its relationship to Australia via the AAEC. Outlines developments in nuclear power and cites reasons given by the AAEC for the absence of a nuclear power plant in Australia. Describes the aims and signatories of the NPT and IAEA safeguards, and cites instances of the IAEA fostering regional cooperation involving Australia.

748. ANON., 1977. US POLICY AND AUSTRALIAN URANIUM, CHAIN REACTION, 3,1, p6-7.

Outlines and critically analyses the new (Carter) United States nuclear policy. Criticises the Fraser government's assertion that its recently-announced decision to mine and export Australian uranium would assist the United States nuclear policy and its claims that this policy is the best hope for stopping nuclear weapons proliferation. Questions the export of Australian uranium to countries intending to 'isolate their own stores of plutonium'. Author believes that by withholding uranium now Australia can strike an effective blow against the hazards of plutonium recycling and nuclear weapons proliferation.

749. ARNDT, H., 1977. AUSTRALIA SHOULD MINE AND EXPORT ITS URANIUM, NEW TIMES (SYDNEY), VOL. 1, SEPTEMBER, p74-76.

The author denies that nuclear power generation increases the risk of nuclear proliferation, outlining

alternative specialist reactor technology for cheap nuclear weapons production. Claims that Australia's refusal to supply uranium would increase rather than diminish the risk of proliferation, causing 'energy short' countries to turn to alternative sources and providing a financial incentive to develop fast breeder reactors, contrary to the objectives of United States safeguards policy. States that proliferation rather than waste disposal is the major nuclear issue and cites a recent report (by Tasmanian Hydro-Electricity Commission scientists) which states that nuclear waste is manageable.

750. BALL, D.J., 1979. AUSTRALIA AND NUCLEAR NON-PROLIFERATION, CURRENT AFFAIRS BULLETIN, VOL. 55, APRIL, p16-30.

Uranium-related issues are dealt with in the second part of this article (pp23-30). Argues that the Fraser government was committed to uranium mining regardless of the outcome of the Ranger Inquiry, but faced widespread concern in Australia over the issue of nuclear proliferation. It consequently welcomed the Carter policy on nuclear proliferation (announced in April 1977) which linked control of nuclear proliferation with the availability of assured supplies of uranium, and it stressed the strictness of Australia's safeguards policy. Details of this latter policy are provided, and it is critically analysed. Author argues that its effectiveness is in fact severely limited, because consumer countries can withdraw from agreements and because the Fraser government subsequently watered down its original safeguard provisions. The Carter policy is seen as having major weaknesses, facing the Fraser government with the collapse of its policy on non-proliferation and uranium exports.

751. BAXTER, P., 1978. SOME PROBLEMS IN AUSTRALIAN DEFENCE [PAPER DELIVERED TO THE ST GEORGE DEFENCE FORUM], AIM, NO. 65, JULY, p6-10.

In the context of a general discussion of some defence problems he believes are facing Australia, Sir Philip Baxter examines the possibility of Australia acquiring nuclear weapons and proposes that domestic enrichment of Australian uranium for overseas export would reduce the lead time for nuclear weapons production for Australia's defence.

752. BRENNAN, M.H., 1983. INTERNATIONAL ATOMIC ENERGY AGENCY GENERAL CONFERENCE, AUSTRALIAN FOREIGN AFFAIRS RECORD, OCTOBER, p619-625.

Contains the text of the Australian general debate statement (12 October 1983) by Professor M.H. Brennan, Chairman of the AAEC, at the IAEA 27th General Conference. The statement reaffirms Australian support for the IAEA and its objectives, and acknowledges the benefits of the Agency's programme of technical assistance and cooperation. States Australia's interest in the establishment of internationally accepted criteria for safe disposal of nuclear waste, gives assurances that Australian experience in the management of waste from uranium mining and milling is shared internationally, and refers to Australia's opposition to sea dumping of nuclear waste. Recognises the important role IAEA plays in disarmament and arms control, states Australia's intention to work towards an improved international non-proliferation and safeguards regime, and outlines new Australian programmes to assist IAEA safeguards capacity.

753. BUTLER, R., 1984. NUCLEAR TEST BAN RESOLUTION: AUSTRALIAN STATEMENT, AUSTRALIAN FOREIGN AFFAIRS RECORD, NOVEMBER, p1179-1180.

In a speech to the First Committee of the United Nations General Assembly, Richard Butler, Australian Ambassador for Disarmament, calls for a Comprehensive Nuclear Test Ban Treaty to complete the regime of international law designed to end nuclear testing. A draft resolution to implement such a treaty, drawn up primarily by Australia and New Zealand, calls for an end not just to nuclear weapons tests, but to all nuclear tests by all states in all environments for all time.

754. COMMONWEALTH OF AUSTRALIA, 1984. URANIUM, THE JOINT FACILITIES, DISARMAMENT AND PEACE, AGPS, CANBERRA, 33p.

The first part of this publication (p3-10) addresses the question of whether the export of Australian uranium contributes to or jeopardises arms control, disarmament and peace. Argues that Australia's refusal to supply uranium would not inhibit any country from developing nuclear weapons if it was determined to do so, that Australia would be replaced as a supplier by countries with less stringent safeguards, and that this would undermine current international safeguard arrangements which, it is claimed, have been effective in preventing proliferation and would damage the cause

of arms control, disarmament and peace. Outlines the major provisions of the NPT and some problems which threaten to undermine it and argues that Australia's failure to export uranium would seriously weaken the NPT's safeguards regime and would also encourage the development of fast-breeder reactors. Reviews the major findings of the [First] Fox Report, and claims that these, taken as a whole, support the government's position and that the government has introduced safeguard conditions even more stringent than those recommended by Fox. Argues that Australia's refusal to supply uranium would weaken its capability and credibility in addressing non-proliferation and disarmament issues in the international community.

755. DUNSTAN, D., 1980. AUSTRALIA AND THE NUCLEAR FUTURE [T.J. RYAN MEMORIAL LECTURE], UNIVERSITY OF QUEENSLAND ALP CLUB, BRISBANE, 20p.

Reviews increasing worldwide concern about the dangers associated with peaceful use of nuclear power and with nuclear weapons production. Questions the arguments and facts presented by both parties in the nuclear debate and sets out to examine the issues involved. Cites evidence for recent concern about the danger posed by uranium mining to health (from radiation) and to the environment (through radioactive contamination). Compares the release of radioactive material from nuclear reactors and coalfired power stations, and the relative risks incurred in the event of an accident in each. Examines the problems created by nuclear fuel reprocessing, especially the proliferation of nuclear weapons and disposal of nuclear waste. Expresses concern about Japanese attitudes to waste disposal, and describes various countries waste disposal methods. Critically examines nuclear safeguard measures and argues that issues of national sovereignty make it difficult for even the IAEA to maintain and check international nuclear agreements and control the use of plutonium. Questions the adequacy and effectiveness of Australian safeguards and discusses Australia's role as a potentially large world uranium supplier, arguing against the view that withholding Australian uranium would result in consumers turning elsewhere and in the earlier development and use of fast breeder reactors. Concludes by stating belief that Australia could and should demand effective safeguards to control use of uranium and ensure safe disposal of nuclear wastes.

756. FALK, J., 1977. NUCLEAR WEAPONS AND AUSTRALIAN URANIUM: RECENT US POLICY ANNOUNCEMENTS, THE

IMPLICATIONS FOR AUSTRALIA, FRIENDS OF THE EARTH,
MELBOURNE, 6p.

Outlines assertions by the Fraser government that Australia should export uranium because it would be 'in our interests' and would also assist President Carter's new nuclear policy which is seen as the best hope for stopping nuclear weapons proliferation, and provides a detailed critique both of the Carter policy and of the Australian government's position. Presents arguments in favour of Australian support for overseas opposition to nuclear power, encouragement of the limitation of the nuclear industry's expansion, assistance in the deployment of alternative energy sources, and withholding of uranium exports. Asserts that the Fraser safeguards which do not 'go all the way' with United States policy indicate Australia's concern not to cut out her major customers whose intention it is to isolate plutonium. Criticises the argument that a decision not to export Australian uranium would create extra pressure for recycling of plutonium, because it assumes that an Australian decision can affect only uranium supply and not demand for it; in fact a decision not to export would give vital support to anti-nuclear groups at a time when the nuclear industry's future is in the balance.

757. FALK, J., 1984. THE DEADLY CONNECTION: URANIUM MINING, NUCLEAR POWER AND NUCLEAR WEAPONS, PEACE DOSSIER, 9, APRIL, 10p.

Outlines the extent and value of Australia's uranium reserves, briefly explains the nuclear fuel cycle, considers the nature of nuclear waste and associated problems, and questions the viability of the latest waste disposal technology, SYNROC. Argues that civilian nuclear power contributes to the isolation of plutonium and nuclear weapons proliferation, critically reviews international safeguard agreements, argues that it is not 'extremely difficult' to make nuclear bombs, and claims that Australian uranium could be diverted from peaceful uses into weapons manufacture. Puts the case for withholding Australian uranium, and argues that Australia can play a vital international role in discouraging the growth of nuclear power.

758. FALK, J. 1987. PREVENTING PROLIFERATION: THE ROLE OF AUSTRALIAN URANIUM, IN BALL, D. AND MACK, A. (EDS), THE FUTURE OF ARMS CONTROL, ANU PRESS/PERGAMON, p253-274.

Discusses the role of Australian uranium in nuclear proliferation, identifying two areas of concern: that

uranium could be enriched to weapons grade in commercial reactors, and that plutonium derived from commercial or research reactors may be chemically extracted to make nuclear weapons. Argues that technical barriers are not sufficient to prevent diversion of materials from the commercial nuclear fuel cycle to the construction of nuclear weapons. Briefly refers to 'problem' countries which are moving towards nuclear weapons capability. Critically reviews the effectiveness of the international safeguards regime, the NPT and the Australian government's Model Nuclear Safeguards Agreement. Discusses alternative strategies through which Australia could contribute to the non-proliferation regime. Argues in favour of Australia making an unambiguous and forceful political statement in respect of nuclear non-proliferation by withholding uranium, and refutes claims that such a policy would assist 'less responsible' suppliers, would contravene aspects of the NPT, and would in fact weaken the NPT.

759. FERNANDEZ, R.R., 1980. NPT REVIEW CONFERENCE: AUSTRALIAN STATEMENT, AUSTRALIAN FOREIGN AFFAIRS RECORD, AUGUST, p289-292.

Contains the text of the statement (14 August 1980) delivered by the leader of the Australian delegation, Mr R.R. Fernandez, to the second Nuclear Non-Proliferation Treaty Review Conference in Geneva. Reviews the contribution of the NPT and IAEA towards nuclear non-proliferation, emphasises Australia's attention to certain provisions of the NPT in formulating its uranium export policy, and claims that this policy offers access to Australian uranium to non-nuclear weapons NPT signatory nations and an incentive for non-NPT members to join, thus enhancing the non-proliferation regime. Refers to Australian support for other IAEA proposals.

760. FOX, R.W., 1981. NUCLEAR NON-PROLIFERATION, AUSTRALIAN QUARTERLY, 53,4, p419-432.

Presents a detailed and comprehensive review of nuclear non-proliferation issues, outlines the safeguards systems of the IAEA and Euratom, explains and assesses the effectiveness of the NPT and bilateral agreements, and briefly mentions the more stringent measures Australia has sought to impose as a uranium supplier. Outlines future measures, including granting of more power to the IAEA, which the author believes would enable a more effective non-proliferation regime to develop.

761. GREY, A.J., 1981. TAKING STOCK AFTER INFCE, IN URANIUM INSTITUTE, LONDON (ED), URANIUM AND NUCLEAR ENERGY 1980, WESTBURY HOUSE, LONDON, p301-309.

Reviews worldwide attempts by governments to limit nuclear weapons proliferation by discouraging the diversion of civil nuclear material and technology to military purposes, and argues that the policies and methods adopted by some governments to achieve this objective threaten to undermine national energy security for many countries in the world. Examines the findings of The International Nuclear Fuel Cycle Evaluation (INFCE) Study, and reviews the present status of the international safeguards regime. Discusses the use of bilateral safeguards agreements to 'hammer out' divergent views on non-proliferation objectives and energy security, claims that prior consent to reprocessing (which Australia is insisting on) is a major stumbling block to safeguards negotiations, and suggests a modified consent clause. Reproduces the views of the Uranium Institute's Committee on International Trade in Uranium on the issue of prior consent, and concludes that an international consensus as to what is acceptable non-proliferation behaviour is vital for public confidence and international cooperation towards the continued use and further development of nuclear power.

762. HARDING, R., 1983. NUCLEAR ENERGY AND THE DESTINY OF MANKIND - SOME CRIMINOLOGICAL PERSPECTIVES, AUSTRALIAN AND NEW ZEALAND JOURNAL OF CRIMINOLOGY, VOL. 16, JUNE, p81-92.

Claims that criminologists have been remiss in totally ignoring the nuclear debate. Their attitude to it should be based on the following points: (1) the nuclear cycle is a total system and participation in it is participation in construction of nuclear weapons (2) there can be no such thing as 'limited' nuclear war and all-out war could destroy the human species (3) it is impossible to prevent accidents in nuclear power plants. Given these points, criminologists should devote their energies to bring about Australia's complete removal from the nuclear fuel cycle an outcome which, given Australia's current substantial interest in nuclear affairs, could have a major impact on the growing world debate on nuclear power.

763. HAYDEN, B., 1984. URANIUM, THE JOINT FACILITIES, DISARMAMENT AND PEACE [SPEECH BY THE MINISTER FOR FOREIGN AFFAIRS TO THE NATIONAL PRESS CLUB ON 4 JULY],

Explains how mining and export of uranium, together with the presence of joint American-Australian defence facilities in Australia, are integral to Labor government policy on arms control and disarmament. Posits the historical inevitability of refinement of peaceful inventions for military use and the reality of nuclear weapons as starting points for a justification of government policy. Outlines measures introduced by the Australian government in pursuit of disarmament, and reaffirms commitment to total nuclear disarmament. Explains the significance of joint facilities and uranium policy in nuclear deterrence, gives assurances about the stringency of Australian safeguards and argues that refusal to supply uranium will not inhibit development of nuclear weapons. Concludes that an about-turn in government policy will destroy rather than enhance the chances of world peace.

764. HAYDEN, B., 1987. AUSTRALIA AND THE IAEA, AUSTRALIAN FOREIGN AFFAIRS RECORD, 158, 9, p478-84.

An (anonymously-authored) introduction outlines the establishment and functions of the IAEA, and Australia's supporting role in the Agency's affairs. Discusses the NPT and international safeguards agreements, and reiterates their importance in Australia's uranium export policy. Highlights Australia's support for the IAEA's technical cooperation programs to meet the peaceful nuclear needs of developing countries, and outlines the benefits gained by Australia's participation in IAEA. Reproduces the text of a speech by Bill Hayden to the IAEA 30th Anniversary Conference in Vienna (21 September 1987). In addition to repeating the sentiments mentioned above, this expresses Australia's concern about the few states that have not made an internationally-binding commitment to non-proliferation and the growing risk of proliferation in South Asia, and briefly refers to some Australian developments such as the replacement of AAEC by ANSTO, research into SYNROC, and the reputation of Australia as a responsible and reliable long-term supplier of uranium.

765. INDYK, M., 1977. AUSTRALIAN URANIUM AND THE NON-PROLIFERATION REGIME, AUSTRALIAN QUARTERLY, VOL. 49, DECEMBER, p4-35.

Highlights the conclusions of both the Fox and Flowers Reports linking the nuclear power industry to the

spread of nuclear weapons, and whilst acknowledging that all protagonists in the uranium debate agree Australian uranium should not be diverted into nuclear weapons production, finds no agreement among them as to how Australia can best meet its responsibilities in this regard. Outlines in detail the nature of the proliferation problem, reviews the 'leave it in the ground' school of thought, and discusses conditional exports and a possible moratorium on uranium. Critically reviews government safeguards policy, arguing that concessions will inevitably be made in future negotiations. Doubts whether government goals based upon conditional exports can be achieved, and suggests that a 'conditions-oriented moratorium', whereby consumers are assured that they will receive their Australian uranium once the conditions of the moratorium had been accepted, would be more appropriate for Australia's needs whilst not precluding Australia from participating in efforts to strengthen the non-proliferation regime.

766. INDYK, M., 1977. NON-PROLIFERATION AND AUSTRALIAN URANIUM [BACKGROUND PAPER], THE CONSEQUENCES OF AUSTRALIAN URANIUM, LEGISLATIVE RESEARCH SERVICE, PARLIAMENT OF AUSTRALIA, CANBERRA, 19p.
767. INDYK, M., 1980. SAFEGUARDING NUCLEAR ENERGY IN THE PACIFIC: THE ROLE OF AUSTRALIA, IN HARRIS, S. AND KEICHI, O. (EDS) AUSTRALIA AND JAPAN: NUCLEAR ENERGY ISSUES IN THE PACIFIC, AUSTRALIA-JAPAN ECONOMIC RELATIONS RESEARCH PROJECT, CANBERRA, p113-145.

Reviews in detail the conclusions of the recently-completed INFCE organising conference, the dangers involved in reprocessing and plutonium, and the Pacific nations' role in nuclear safeguards regimes. Outlines steps which should be taken to safeguard nuclear energy. Provides a comprehensive and extensively-documented account of the Fraser government's declared policy on non-proliferation and nuclear safeguards, a policy which implies a deep commitment to control of reprocessing and plutonium and to international safeguards. Argues that an analysis of its actual record in this area, on the other hand, indicates that when the government's desire to sell uranium conflicts with its desire to strengthen the non-proliferation regime it will give priority to the former and make whatever adjustments are necessary to its non-proliferation policy. On the basis of this analysis, predicts what Australia's reaction will be to the INFCE's programme for creating non-proliferation institutions.

768. KENNEDY, L., 1983. NUCLEAR POWER: SEPARATING THE FACTS FROM THE MYTHS, NEWS WEEKLY, 30 NOVEMBER, p8-9.

Favours full development of Australia's uranium and of nuclear energy. Argues that there is no link between the use of uranium in power plants and in nuclear weapons (indeed the uranium used or produced in a nuclear reactor is quite distinct from that used in weapons), and that the nuclear power industry has a better safety record and is environmentally less destructive than other energy industries, for example coal mining and coal-fuelled power stations.

769. KITNEY, G., 1982. AUSTRALIAN FIRMS LIKELY TO SELL URANIUM TO EGYPT, NATIONAL TIMES, 15-21 AUGUST, p6.

770. MOVEMENT AGAINST URANIUM MINING, 1979. ILLUSION OF SECURITY: AUSTRALIAN NUCLEAR SAFEGUARDS, MAUM, MELBOURNE, 4p.

Discusses the implications of uranium exports for nuclear weapons proliferation, questions the effectiveness of the Australian government's announced safeguards measures which rely upon the IAEA and the NPT, and claims that the Fraser government's uranium policy is determined by commercial factors. Argues that the Australian government is emphasising United States nuclear policy in order to gain public acceptance of its safeguards proposals, and offers a detailed critique both of United States nuclear policy and of the Fraser safeguards policy. Cites evidence of reduced demand for nuclear energy in criticising the argument that shortage of uranium will lead to use of fast-breeder reactors and increased plutonium isolation, and argues that Australia should withhold its uranium thereby giving support to citizen opposition groups in other countries in order to halt the spread of the nuclear power industry and the associated threat of nuclear war.

771. MOVEMENT AGAINST URANIUM MINING, 1985. THE SUPERPHENIX: AUSTRALIA'S LINK WITH THE FRENCH NUCLEAR WEAPONS PROGRAM, BACKGROUND BRIEFING ON NUCLEAR ISSUES, NO. 6, AUGUST, 2p.

Claims that Australian uranium supplied to West Germany may find its way into French-manufactured nuclear weapons through intended French use of the Superphenix fast breeder reactor. Briefly explains how fast breeder reactors work, and questions their economic advantage. Claims that the civil activities of the French Superphenix reactor disguise the production of plutonium for nuclear weapons manufacture. Argues that

the NPT and nuclear safeguards agreements are ineffective in preventing France from using civilian nuclear fuel for military purposes, and more generally that it is impossible to separate the peaceful from the military application of nuclear energy. Criticises the Australian government's nuclear safeguards agreements, and calls for a halt to uranium exports to France and the Federal Republic of Germany and a return to a ban on reprocessing of Australian uranium.

772. NOONE, V., 1982. AUSTRALIA'S PART, IN NOONE, V. (ED) CATHOLICS AND NUCLEAR WAR, REPORT ON MELBOURNE CONFERENCE MARCH 1982, LISTEN AND LEARN PUBLICATIONS, MELBOURNE, p21-30.

Outlines Australia's present involvement in the nuclear arms race, focusing especially on United States bases in Australia which the author claims are related to preparations for nuclear war. Briefly reviews the export figures and customers of the Ranger and Nabarlek uranium mines. Claims that 'watered down' government safeguards and uranium enrichment outside the jurisdiction of IAEA mean Australian uranium can be used for nuclear weapons, and expresses concern regarding the increasing number of nations which either have or intend to develop nuclear weapons with the assistance of countries which purchase Australian uranium.

773. PHILLIPS, D., 1984. AUSTRALIA AND THE NUCLEAR FUEL ISSUE, ISLAND MAGAZINE, SPRING, p14-17.

Attacks the Labor government's 1984 decision to allow uranium mining to continue. Rejects the government's claim that Australia's total withdrawal from the nuclear fuel cycle would destroy its capacity to influence the course of nuclear arms control and disarmament, and argues that its decision reflected pragmatic economic and political considerations. Insists that the nuclear fuel cycle (including weapons testing, discussed in the first part of the paper) is a single process, and that Australia's participation in any stage of it increases the likelihood of this country becoming involved in other stages, including possession of nuclear weapons.

774. PURNELL, D., 1984. THINK AGAIN, MR HAYDEN, NATIONAL OUTLOOK, 6,10, p8-10.

Assesses Foreign Minister Bill Hayden's July 1984 statement on uranium mining and United States/Australian facilities (see No. 763), which argued that Australia should continue to supply uranium

in order to meet its obligations to the international community and to have an effective voice on international arms control and nuclear proliferation issues. Purnell feels that this argument is based more on a rationalisation of existing policy than on any clear evidence of the outcome of the policy, and claims that an alternative approach (i.e. withdrawal from the nuclear fuel cycle) might provide Australia with as much or even more influence over the behaviour of nuclear states. He is concerned about the great stress the government places on maintaining and strengthening the NPT, especially given that the NPT's emphasis on promoting peaceful uses of nuclear power may no longer be appropriate, and argues that Australia could be more creative in its policies on arms control and nuclear proliferation.

775. ROBOTHAM, R., 1983. URANIUM AND NUCLEAR WEAPONS - THE INSEPARABLE LINK, HABITAT AUSTRALIA, 11, 5, p6.

776. SUTER, K.D., 1984. AUSTRALIA'S URANIUM AND THE NUCLEAR NON-PROLIFERATION TREATY, HABITAT AUSTRALIA, 12,5, p26-27.

Argues that Australian sellers of uranium cannot rely on the NPT to minimise the risk of nuclear weapons proliferation. There is no method of enforcement within the NPT, many potential nuclear weapons states remain outside it, and countries can withdraw from it at three months notice. Of more specific relevance to Australia, a uranium producer cannot control use of its uranium after export, a consumer could stockpile Australian uranium and so negate the threat of supply cuts, governments which were party to the NPT may be replaced, and the Australian government has no capacity to prevent 'nuclear terrorism' in customer countries.

777. SVENKE, E., 1984. URANIUM BAN COUNTER-PRODUCTIVE (AUSTRALIA WOULD HAVE NO SAY IN ITS USE), MINING MONTHLY, FEBRUARY, p15-16.

Advocates export of Australian uranium and deals with two major arguments against it: the possible contribution to nuclear weapons development, and nuclear waste disposal problems. Argues that withdrawal of Australian uranium would not prevent nuclear weapons development, and points out that Australia can impose conditions on uranium supplies to consumer nations. Claims that the technology exists to safely store nuclear waste but is not always used, and suggests that Australia can contribute to achievement of a world scientific, technological and political consensus on waste disposal.

778. TANTER, R., 1986. PROMISE ABANDONED: THE DUMPING OF URANIUM [FROM THE PEACE MOVEMENT AGENDA], PEACE STUDIES, 1, MARCH, p28-33.

The peace movement has allowed the uranium mining issue to drop from its agenda, mainly on the grounds that the Australian public does not perceive a connection between uranium mining and nuclear weapons proliferation. This approach is criticised; the peace movement should educate the public regarding the existence of such a link, which in the author's view is very real. Opposition to uranium mining provided grounds for an alliance between Aborigines and white Australians concerned with environmental and nuclear arms issues, and the basis for such an alliance persists despite the support of some Aborigines for uranium mining. Criticises the Labor party's 'abandonment' of the uranium issue, which is seen as part of a broader strategy aimed at forming an alliance with business interests.

779. TOWNSEND, D., 1987. THE RELATIONSHIP BETWEEN URANIUM EXPORTS, THE SPREAD OF NUCLEAR WEAPONS AND THE NON-PROLIFERATION TREATY, IN BALL, D. AND MACK, A. (EDS), THE FUTURE OF ARMS CONTROL, ANU PRESS/PERGAMON, CANBERRA, p275-300.

Traces the history of Australian uranium exports and reviews the current market for nuclear material in general. Traces the evolution of the NPT, reviews IAEA safeguards, and discusses some current nuclear proliferation problems including 'risk' countries and 'dual use' technology. Reviews Australia's contribution to the international safeguards regime, suggests some ideas for containing the spread of nuclear weapons, and argues that to contribute effectively to non-proliferation, Australia must maintain access to, and influence in, the relevant international councils, and maintain a standard of implementation (of non-proliferation policies) which is 'beyond reproach'.

Cross References

87, 107, 115, 121, 128, 144, 149, 163, 171, 174, 175, 182, 186, 200, 229, 237, 282, 283, 288, 290, 291, 294, 358, 359, 375, 558, 559, 607, 621, 626, 683, 694, 785

Nuclear Safeguards

780. ANON., 1982. NUCLEAR SAFEGUARDS POLICY, AUSTRALIAN FOREIGN AFFAIRS RECORD, MARCH, p95-97.

Outlines the aims and objectives of the Liberal government's safeguards policy, refutes allegations that it has been 'watered down' and that there has been a 'trade-off' between safeguards and commercial considerations, and deals individually with major criticisms of the policy. Claims that both the consistency of the safeguards texts and the stringent controls they provide constitute clear evidence that the agreements not only continue to operate, but are fulfilling all the requirements of the government's policy.

781. ANON., 1982. AUSTRALIA'S PROGRAM OF ASSISTANCE TO IAEA SAFEGUARDS, AUSTRALIAN FOREIGN AFFAIRS RECORD, SEPTEMBER, p563-572.

Details the background to Australia's policy and discusses the scope and organisation of its support programme for IAEA safeguards, including a detailed description of three projects developed to monitor the levels of enrichment both at enrichment plants and in the field. Outlines the plans for future developments in safeguards assistance to the IAEA.

782. ANTHONY, D. AND MacKELLAR, J.R., 1981. AUSTRALIA/CANADA NUCLEAR SAFEGUARDS AGREEMENT, AUSTRALIAN FOREIGN AFFAIRS RECORD, MARCH, p128-129.

Text of a joint news release (10 March 1981) issued by Doug Anthony, Deputy Prime Minister and Minister for Trade and Resources, and J.R. MacKellar, Acting Minister for Foreign Affairs, announcing the signing of a nuclear safeguards agreement between Australia and Canada which provides for 'cooperation in the peaceful uses of nuclear energy', and allows for subsequent negotiations on reprocessing. Claims the agreement provides safeguards for use of Australian uranium beyond its conversion in Canada.

783. ANTHONY, D., AND STREET, T., 1981. AUSTRALIA/FRANCE NUCLEAR SAFEGUARDS AGREEMENT, AUSTRALIAN FOREIGN AFFAIRS RECORD, JANUARY p41-42.

Text of a joint news release (7 January 1981) issued by Doug Anthony, Deputy Prime Minister and Minister for Trade and Resources, and Tony Street, Minister for

Foreign Affairs, announcing the signing in Paris of the France/Australia Nuclear Transfers Agreement. Claims this incorporates all the requirements of the Australian government's 1977 safeguards policy, and is significant in that it is the first agreement to incorporate a settlement on reprocessing. Refers to transitional arrangements for French enrichment of Australian uranium supplied to Japan, and claims that the agreement furthers Australia's establishment of nuclear safeguards agreements with other countries.

784. BALL, D., 1982. AUSTRALIA AND NUCLEAR POLICY, IN BALL, D. (ED), STRATEGY AND DEFENCE : AUSTRALIAN ESSAYS, ALLEN AND UNWIN, SYDNEY, p320-342.

Briefly refers to the history of the nuclear debate in Australia, outlines Australia's nuclear weapons capability and discusses the issue of whether or not to mine and export Australian uranium. Assesses the viability of President Carter's nuclear policy and the adequacy of Australia's safeguards policy from the perspective of Australian uranium and nuclear non-proliferation. Examines the Australian government's 1977 Model Nuclear Safeguards Agreement, and cites examples in support of claims that there has been a weakening of the government's position in subsequent agreements. Discusses the implications of changes in United States nuclear policy (since 1977) for Australian policy on non-proliferation and uranium exports. Makes some recommendations regarding future Australian safeguards policy and argues that the inadequacy of the present policy both cautions against an Australian nuclear weapons project and also suggests that, for the meantime, Australian uranium would be best left in the ground.

785. EDWARDS, J., 1977. FORGET ABOUT URANIUM FOR THIS ELECTION AND PROBABLY THE NEXT ..., NATIONAL TIMES, 7-12 NOVEMBER, p9-11.

Predicts considerable delay in finalising Australian uranium export contracts with European buyers, including the United Kingdom, and identifies three reasons: the threat of a future Labor government's repudiation of the contracts; decreases in uranium demand due to a slow down of reactor construction; and, most significantly, European buyers' objections to the Fraser government's stringent safeguards policy. Argues that the sale of uranium will consequently be purely an academic issue in the forthcoming (1977) election. Outlines Euratom's objections to Australian safeguards, particularly Australia's insistence on a right of veto over reprocessing of spent fuel rods

manufactured from Australian uranium. Reviews United States and Canadian policy on reprocessing and proliferation. Reviews implications for uranium sales contracts of two recent United States developments aimed at resisting proliferation, the Percy Nuclear Supply Contracts Bill and the International Nuclear Fuel Cycle Evaluation programme.

786. EDWARDS, J., 1978. AUSTRALIA'S URANIUM POLICY LEFT IN TATTERS, NATIONAL TIMES, 24-29 APRIL, p12.

Reviews Europe's objection to United States and Australian safeguards conditions, notes Canada's decision to supply uranium to Europe without a requirement for a veto over reprocessing, and speculates that Australia may be about to break with the United States and fall into line with the Europeans.

787. EDWARDS, J., 1978. NUCLEAR SAFEGUARDS: THE WATERING DOWN BEGINS, NATIONAL TIMES, 15 JULY, p40.

Outlines contrasting United States and Euratom policies on spent fuel rod reprocessing and transfer of nuclear materials to other countries, reviews their reactions to the United Kingdom/Australia bilateral agreement for uranium sales, and argues that this agreement may mark the Australian government's departure from its tough nuclear safeguards policy which was announced in 1977 and played a key part in the rationale for export of Australian uranium.

788. ENERGY RESOURCES OF AUSTRALIA, 1985. SAFEGUARDING RANGER URANIUM, ENERGY RESOURCES OF AUSTRALIA, SYDNEY, 20p.

Describes the Australian government safeguards applying to uranium exports by Energy Resources of Australia, explains the international effort being made to prevent the spread of nuclear weapons, and how Australian-origin nuclear material, including Ranger uranium, is tracked throughout its life cycle in order to provide assurance that it is only used for peaceful purposes. Appendices discuss the nuclear fuel cycle and international safeguards, list NPT states, and outline Australia's involvement in the safeguards regime.

789. MILLIKEN, R., 1982. TO RUSSIA WITH LOVE, NATIONAL TIMES, 7-13 FEBRUARY, p25.

Details changes to Australia's safeguards policy for uranium exports introduced over the period 1977-1982, and argues that they amount to a significant weakening

of the original policy. Claims that the Federal government has bowed to commercial pressure on Australia to accept less stringent safeguards if it is to compete successfully in a uranium market which is currently oversupplied and is likely to remain so for the foreseeable future.

790. MOVEMENT AGAINST URANIUM MINING, 1984. EFFECTIVENESS OF SAFEGUARDS, BACKGROUND BRIEFING ON NUCLEAR ISSUES, NO. 1, MAY, 2p.

Critically examines the effectiveness of the international nuclear safeguards system, the transfer of Australian uranium between user countries after sale by Australia, and the 'record' of Australian customer countries. Outlines some loopholes in the safeguards system, and claims that governments will not accept or impose full scale safeguards because they are unwilling to renounce the use of nuclear weapons. Claims some Australian uranium is diverted into military projects overseas.

791. PEACOCK, A., 1979. NUCLEAR SAFEGUARDS POLICY: CONTROL ARRANGEMENTS ON URANIUM CONCENTRATES (YELLOW-CAKE), AUSTRALIAN FOREIGN AFFAIRS RECORD, JULY, p442-443.

Text of a news release issued by Andrew Peacock, Minister for Foreign Affairs, announcing a government decision that the export of uranium will be permitted without a requirement that Australian ownership be retained until it is converted to a form suitable for fuel fabrication or enrichment. Argues that this decision will not undermine Australia's stringent controls on the export of uranium, and was necessary if Australian companies named in the Westinghouse anti-trust suit were to avoid the risk of having uranium shipments seized overseas.

792. PEARSON, O., 1982. AUSTRALIA AND THE ARMS RACE, SEMPER, 1 MARCH, p13.

793. PESCOTT, R., 1981. URANIUM POLICY SHIFT A BOOST FOR EXPORTS, AUSTRALIAN BUSINESS, JANUARY, p88-89.

Discusses changes to Australian policy on reprocessing of spent fuel from uranium it supplies to the nuclear power industry. Explains the conflict over reprocessing requirements between major supplier countries anxious to prevent nuclear proliferation (United States, Canada, Australia) and consumer countries anxious to retain control over energy sources. The new Australian policy retains the requirement for Australian approval for reprocessing of

spent fuel, but is more specific about the circumstances in which reprocessing will be permitted and allows for negotiation of agreements which cover the use of uranium in clearly-defined peaceful nuclear programmes.

794. ROTSEY, W.B., 1976. CONDITIONS APPLYING TO AUSTRALIAN URANIUM EXPORTS - SAFEGUARDS OBLIGATIONS UNDER NPT, ATOMIC ENERGY IN AUSTRALIA, 19, 2, p1-7.

Defines the two safeguards regimes under which Australia exports its uranium to non-NPT and to fellow NPT countries. Briefly explains the application of safeguards and the role of the IAEA, and argues that these conditions ensure that Australian uranium is not used in the manufacture of nuclear weapons.

795. SINCLAIR, I. AND STREET, T., 1981. AUSTRALIA/SWEDEN NUCLEAR SAFEGUARDS AGREEMENT, AUSTRALIAN FOREIGN AFFAIRS RECORD, MARCH, p134-135.

796. STREET, T., 1980. CONDITIONS FOR AUSTRALIAN CONSENT TO REPROCESSING, AUSTRALIAN FOREIGN AFFAIRS RECORD, NOVEMBER, p443-447.

Text of a statement (20 November 1980) by Tony Street, Minister for Foreign Affairs, to the House of Representatives on conditions for Australian consent to the reprocessing of nuclear material of Australian origin. Reveals the government's decisions, argues that existing government safeguards policy gives Australia the right to decide under what conditions reprocessing could proceed and details how and on what basis the government intends to exercise Australia's prior consent rights over reprocessing. Summarises INFCE statements on reprocessing and plutonium, justifies reprocessing on the grounds that assured security of supply will reduce development of 'sensitive technologies', and outlines how the government's new approach to reprocessing satisfies its safeguards objectives and the work of the IAEA.

797. STREET, T., 1981. NUCLEAR SAFEGUARDS AGREEMENTS, AUSTRALIAN FOREIGN AFFAIRS RECORD, MARCH, p138-142.

Contains the text of a parliamentary statement (26 March 1981) by Tony Street, Minister for Foreign Affairs, on nuclear safeguards agreements with France, Canada and Sweden. Confirms the government's intention to make public the texts of all Australia's nuclear safeguards agreements, and presents examples illustrating its policy of enhancing the international non-proliferation regime through multilateral bodies

and bilateral negotiations. Notes that the French and Swedish agreements allow for reprocessing in line with the prior consent clause, and that the Canadian agreement contains reprocessing conditions for future use if required. Mentions Australia's aim to conclude an agreement with Euratom, which is viewed by the government as a significant step in relationships with the EEC. Informs parliament of letters exchanged between France and Japan covering the conversion and enrichment in France of Australian uranium exported to Japan under old contracts.

798. STREET, T., 1982. AUSTRALIA-JAPAN NUCLEAR SAFEGUARDS AGREEMENT, AUSTRALIAN FOREIGN AFFAIRS RECORD, MARCH, p113-115.

Text of a parliamentary speech (9 March 1982) by Tony Street, Minister for Foreign Affairs, presenting an outline of the Australia-Japan Nuclear Safeguards Agreement. Describes the Agreement's conditions and controls and claims that it complies with all the requirements of the Australian government's 1977 safeguards policy. Remarks on the significance of the Agreement for export of uranium to the large Japanese market. Refutes media suggestions that the Agreement waters down Australia's policy requirements for prior consent over reprocessing, transfers to third parties and high enrichment, and argues that Australia's bilateral agreements are contributing to the international non-proliferation regime.

799. TRIGGS, G., 1985. AUSTRALIA'S BILATERAL NUCLEAR SAFEGUARDS AGREEMENTS: A TRIUMPH OF REALITY OVER SYMBOLISM, AUSTRALIAN OUTLOOK, 39, 3, p147-155.

Outlines the international multilateral safeguards system established by the 1957 Statute of the International Atomic Energy Agency 1968 NPT, considers each of the criticisms of the multilateral safeguards system made by the Ranger Inquiry and the subsequent bilateral treaties which purport to rectify those defects. Argues that the central problems in constructing an effective system of safeguards for nuclear materials lie in the difficulty of distinguishing peaceful from military purposes and in ensuring that materials used for peaceful purposes are not diverted to prohibited uses. Claims that recognition of these problems does not warrant the conclusion that safeguards are totally without value since it is possible to make them more effective (though not infallible) and that it should be possible to foster a near-universal commitment to the NPT and other multilateral and bilateral nuclear arms control

agreements on the grounds that they are, in the long run, to the reciprocal advantage of all countries.

Cross References

24, 25, 72, 149, 191, 249, 288, 290, 344, 755, 757, 761

PART NINE

INDIVIDUAL MINES

Ben Lomond

800. BORSCHMANN, G., 1983. FRENCH HERE TO MINE URANIUM, AGE, 31 AUGUST, p13.

Describes the winding back of Minatome's operations at the Ben Lomond uranium prospect. States that depressed uranium markets, Australian political uncertainty and environmental problems have forced Ben Lomond into mothballs, at least temporarily, but that Minatome is confident that growing uranium demand by the late 1980s will justify development of the project. Describes work already carried out at Ben Lomond. Outlines concern regarding the project's environmental impact expressed by a Queensland mining warden, who rejected the company's mining lease application in April 1981, and by a representative of the Townsville Regional Conservation Council. Minatome subsequently provided the Queensland government with additional information on proposed environmental protection procedures, but the Minister for Mines has yet to announce if he will overturn the mining warden's decision.

Cross References

205, 669, 727, 728

Honeymoon

801. ANON., 1982. WHAT'S HAPPENING AT HONEYMOON, JOHNNY GREEN'S JOURNAL, 2, 3, p11-15.

Outlines the history of uranium exploration at Honeymoon, and describes proposed mining techniques. Refutes allegations that uranium mining will radioactively contaminate the air and underground water supplies, and outlines programmes designed to monitor the impact of mining on the environment, to permit rehabilitation, and to ensure worker and public health and safety. Lists state and national economic benefits to be gained from uranium mining at Honeymoon.

802. WATTS, R., 1982. THE HONEYMOON OCCUPATION, RABELAIS, 2 JUNE, p14-15.

Explains that the danger of contamination of underground water supplies in an arid zone by a uranium leach mining process led to Honeymoon being chosen for the first national anti-uranium action. Describes the occupation which, in the opinion of the author, showed that the nuclear and uranium debate is still 'very much alive' in Australia.

Cross References

300, 306, 633, 639, 729, 730

Jabiluka

803. ANON., 1978. JABILUKA: WAITING TO CROSS THE LAST HURDLE, RYDGE'S, VOL. 51, SEPTEMBER, p35-6, 41-2.

804. ANON., 1982. JABILUKA GETS GOVT GO-AHEAD, ENERGY (SYDNEY), 10, 8, p9-10.

805. CAMPAIGN AGAINST MINING ABORIGINAL LAND, 1979. PANCON AT JABILUKA: A BIGGER FIGHT THAN RANGER, NATIONAL STUDENT, NO. 10, p9.

Reports that Pancon's Environmental Impact Statement (see No. 732) has caused concern among Aboriginal communities of Eastern Arnhem Land, anti-uranium groups, conservationists and even among Commonwealth government officials. Speculates about the likelihood and timing of an agreement to mine at Jabiluka.

806. RENNIE, P., 1981. PANCON GO-AHEAD - SO WHAT?, RYDGE'S, 54, SEPTEMBER, p39,41.

Reviews the implications of uranium markets and of attitudes among Aborigines, trade unions, the ALP and Australian stock exchanges for the prospects of developing the Jabiluka uranium deposit. Considers that the long delays which the project has faced may be near an end.

807. RENNIE, P., 1982. JABILUKA APPROVED - NOW FOR THE CONTRACTS, RYDGE'S, 55, OCTOBER, p44-45,48.

Assesses prospects for the Jabiluka project in the light of approval granted for its development by the federal government in July 1982. Provides a brief

history of the project and the company which discovered Jabiluka, Pancontinental Mining Ltd, outlines development and mining plans, and assesses market prospects for sales from the project which are thought to be reasonably good because of the desire of customers to guarantee secure, low cost supplies for the future.

Cross References

456A, 481, 487, 491, 504, 630, 643, 659, 660, 733, 734, 735, 736

Koongarra

808. REYNOLDS, E., 1984. KOONGARRA - THE ROLLED BY YEARS AND COSTS, IN DARWIN CONFERENCE, 1984, AUS.I.M.M., MELBOURNE, p73-83.

Provides a history of the Koongarra project, detailing the delays it experienced because of changes in federal government policies on uranium, the environment and Aboriginal land rights, negotiations with government agencies, the Northern Land Council and local Aborigines, fulfilment of planning and environmental requirements, and changes in mine plan and plant design. Calculates the cost of delays and non-development to the companies involved, to contractors and suppliers and to federal and state [sic] governments, and estimates the increase in project capital costs resulting from the delays and the likely revenue lost as a result of 'missing' the high uranium prices which prevailed in the late 1970s.

809. SIMPER, E., 1983. THE SAGA OF A TREASURE TROVE WORTH A NATION'S RANSOM, AUSTRALIAN, 19 DECEMBER, p9.

Reviews the history of the Koongarra uranium deposit in the Alligator Rivers region of the Northern Territory and unsuccessful attempts by the leaseholders, Denison, to get government approval for mining operations to go ahead.

Cross References

8, 208, 432, 435, 487, 504, 643, 731, 732

Mary Kathleen

810. ANON., 1976. MARY KATHLEEN RE-OPENS U308 PIT : REBUILT MILL USES SOLVENT EXTRACTION, WORLD MINING, 29, 5, p80-81.

811. ANON., 1976. MARY K - A SECOND LIFE, QUARRY MINE AND PIT, 15, 10, p4-7.

Describes the mining town of Mary Kathleen and outlines the mining and processing methods and safety measures to be employed.

812. BROWN, H., 1983. THE OASIS OF THE MARY KATHLEEN SURRENDERS TO THE SPINIFEX, WEEKEND AUSTRALIAN, 5-6 MARCH, MAGAZINE, 2.

813. GAHAN, C., 1977. THE SECOND LIFE OF MARY K, REPRINTED FROM CRA GAZETTE, 12, 11, DECEMBER, 4p.

Details mining and milling operations at the recommissioned Mary Kathleen uranium mine, describes the township and some of the employees. Briefly lists checks carried out by the company including monitoring of radiation, dust levels and radon gas, tailings seepage and regular employees' medical examinations.

814. MARY KATHLEEN URANIUM LTD., 1975. MARY K STARTS LIFE AFRESH, THE MINER, VOL. 2, 27 OCTOBER, p5, 9, 19.

815. WILLET, K., 1970. THE ENERGY PRODUCERS : MARY KATHLEEN URANIUM LIMITED, QUEENSLAND GOVERNMENT MINING JOURNAL, MAY, p207-210.

Presents a detailed examination of the Mary Kathleen uranium mine including its history, financing arrangements, development of the project, mining and ore treatment, and the significance of government export policy for the operating company.

Cross References

8, 223, 695, 703

Nabarlek

816. HAYWARD, N.L., 1984. STAFFING ARRANGEMENTS AT QUEENSLAND MINES LIMITED'S NABARLEK URANIUM TREATMENT

PLANT, IN DARWIN CONFERENCE, 1984, AUS.I.M.M.,
MELBOURNE, p9-16.

Provides background information on the Nabarlek uranium project and explains why a rostered 'fly-in fly-out' system was adopted for its workforce. Provides a detailed description of how the system operates and discusses some of the operational and social problems which have been associated with it.

817. RABBONE, M., 1979. GO-AHEAD FOR NABARLEK URANIUM MINE, DIRECT ACTION, NO. 245, p7.

Reports that Aboriginal communities and the Commonwealth government have given the go-ahead for uranium mining at Nabarlek. Cites the concern of a Friends of the Earth spokesman, John Hallam, about radon gas and mineworkers' health at Nabarlek. Reviews ACTU uranium policy and reaction to the Nabarlek go-ahead.

Cross References

39, 96, 432, 445, 451, 456A, 462, 470, 635, 643, 676, 678, 720, 737, 738

Ranger

818. ANON., 1979. MINING THE RANGER DEPOSIT IN AUSTRALIA, NUCLEAR ENGINEERING INTERNATIONAL, 24, 280, JANUARY, p52-3.

819. ANON., 1980. AUSTRALIA: URANIUM MILESTONE, MINING JOURNAL, VOL. 295, NO. 7566, 22 AUGUST, p143.

Reviews the organisation and financing of ERA Ltd., the new controlling company for the Ranger project, which recently signed long-term uranium supply contracts with Japanese and West German customers, and mentions the other uranium mines which have been given or are still awaiting government approval. Explains briefly how federal government uncertainty on uranium policy, based on the issues of Aboriginal land rights and nuclear arms proliferation, has led to considerable delays in mining and production at Ranger and notes that the demand for and price of uranium worldwide has decreased in the meantime.

820. ANON., 1980. RANGER URANIUM MINE LEADS THE RACE TO MARKET, AUSTRALIAN MINING, 72, 2, p46-52.

Traces the history of the Ranger uranium mine, describes the deposits and the mining methods adopted, and explains how certain health and environmental problems associated with uranium milling will be dealt with.

821. ANON., 1981. THE MINE BECOMES A REALITY, MINING QUARTERLY, JANUARY, p26-39.

Presents an overview of all aspects of the Ranger operation (except its impact on Aborigines). Outlines the project's history, reviews progress on plant construction and mining, and outlines plans for the mine township and for mining and milling techniques. Provides a resume of the 'key' men at Ranger and its parent company ERA.

822. BORSCHMANN, G., 1982. GETTING A SLICE OF YELLOWCAKE TOURISM, WEEKEND AUSTRALIAN, 9-10, OCTOBER, p17.

823. BURROWS, D., 1983. DAVE BURROWS AT RANGER, AUSTRALIAN MINING, 75, 11, p40-48.

824. ENERGY RESOURCES OF AUSTRALIA LTD., 1980. PROSPECTUS OF AN ISSUE OF SHARES IN ENERGY RESOURCES OF AUSTRALIA LTD., ERA, SYDNEY, 72p.

A basic source of information on the Ranger uranium project which provides details on a wide range of issues relevant to its development. Outlines the project's history, and provides comprehensive information on existing uranium contracts, acquisition of rights in the project from the Commonwealth, overseas participants, financing of the project and ore reserves and other relevant geological data. Summarises government policy, agreements, legislation and environmental requirements, and the terms of the agreement with the Northern Land Council. Includes a listing of the objects for which ERA was established and other information relevant to its corporate activities.

825. FISK, B.G. AND FARTHING, J.W., 1985. THE RANGER URANIUM MINE: ITS HISTORY AND DEVELOPMENT, NUCLEAR SPECTRUM, 1, 2, p2-4.

Traces Ranger's discovery and early development, the establishment of ERA, and the construction of the mine and the township of Jabiru. Lists the legislation introduced during 1978 as a result of the Fraser

government's 1977 decision to proceed with uranium mining and export. Reviews the Ranger Agreement between the NLC and the Commonwealth.

826. HODGE, S.J. AND MISKELLY, N., 1983. FINANCING THE RANGER URANIUM PROJECT, IN AUS.I.M.M., SYDNEY BRANCH, DEVELOPMENT SYMPOSIUM, AUS.I.M.M., p287-296.

Provides a brief history of the Ranger uranium project, then explains how funding for the project was arranged. This involved the establishment of a new corporate entity, Energy Resources of Australia, and the simultaneous negotiation of sales contracts for project output, of an agreement with Peko Wallsend and E.Z. Industries for the purchase of the Commonwealth's share in the project, of bank loans for construction costs and of a bank guarantee to cover rehabilitation costs. The final element in the financing involved equity sales to customers and to the public through a share issue. The authors describe what was involved in each step and indicate the negotiating strategy adopted by the ERA team.

827. KYLE, F. AND MANSFIELD, T., 1979. LAND HERITAGE IS NON-U, NATION REVIEW, 22 MARCH, p402.

828. LEA, J. AND ZEHNER, R., 1986. YELLOWCAKE AND CROCODILES, TOWN PLANNING, GOVERNMENT AND SOCIETY IN NORTHERN AUSTRALIA, ALLEN AND UNWIN AUSTRALIA PTY LTD., SYDNEY.

Chapters 3-7 deal with Jabiru, the town established in association with the Ranger uranium project. Chapter 3 provides a history of the discovery and development of the Ranger orebodies and initial debates regarding, and plans for, the establishment of a new town in the Alligator Rivers Region. Chapter 4 describes the establishment of Jabiru, analysing its financing, residential development, housing, the position of Aborigines, the development of town government and inter- and intragovernmental relations over Jabiru. Chapters 5 and 6 present and discuss the results of a community survey of Jabiru carried out by the authors in July 1984, including demographic and migration data and the results of attitude surveys across a range of issues including housing, rating, the community, Kakadu National Park, the Aboriginal community, administration and governance. The concluding chapter analyses some implications of the Jabiru experience for governance and planning of new mining towns.

829. MELDRUM, L., 1981. JABIRU - A MELTING POT IN THE NORTH, CANBERRA TIMES, 1 FEBRUARY, p9.

Describes the accommodation, amenities and lifestyle of the mining township of Jabiru, and reviews the Gagudju Association's management of uranium royalties.

830. MILLIKEN, R., 1978. ABORIGINES GIVE RANGER THE GO-AHEAD AFTER TORTUOUS WEEK, NATIONAL TIMES, 23 SEPTEMBER, p12-13.

Reports on the reactions of Aboriginal communities to government pressure to sign the Ranger Agreement, and the views of Bob Collins (MLA for the Arnhem electorate), Alan McIntosh (Ranger Chief Engineer) and Rob Ryan (Geo Peko's Chief Geologist) on the situation at Ranger.

831. SCOTT, W.E., 1980. RANGER MINE PREPARES FOR URANIUM PRODUCTION, ENERGY INTERNATIONAL, 17, 4, APRIL, p18-21.

Outlines the history of the Ranger uranium mine from the exploration stage to current preparations for mining, details the mining and milling methods which will be used, and outlines proposed measures for dealing with health and environmental problems associated with milling uranium ores.

832. WOODS, D.T., 1979. THE RANGER URANIUM PROJECT, AUS. I.M.M. BULLETIN, NO. 432, JULY, p11-15.

Outlines Ranger's organisational structure and the legislation and agreements controlling the venture. Outlines the geology and extent of the Ranger deposits, describes mining and milling operations, and details the water management system including tailings storage. Explains how certain legislation and the Office of the Supervising Scientist combine to regulate environmental aspects of the mining venture. Outlines provisions relating to Aborigines in the Ranger Agreement, and reviews construction progress on both mining facilities and the Jabiru township.

Cross References

39, 82, 147, 191, 211, 222, 282, 283, 432, 441, 447, 456A, 458, 459, 462, 463, 468, 482, 508, 509, 510, 511, 512, 513, 514, 515, 517, 518, 528, 585, 625, 631, 645, 649, 652, 656, 657, 662, 671, 674, 675, 676, 677, 678, 686, 715, 724, 726, 739, 788

Roxby Downs/Olympic Dam

833. ANON., 1980. ROXBY DOWNS - WMC'S WIDE, DEEP AND HANDSOME PROSPECT, RYDGE'S, 53, 3, p41-43.
834. ANON., 1983. BLOCKADE [OF ROXBY DOWNS URANIUM MINE], ARENA, 16,7, p5.

Argues the case for opposing uranium mining and seeks support for a blockade of the Roxby Downs mine site on the grounds that the project is unsafe, uneconomic, environmentally unsound and will contribute to the increasing number of nuclear weapons.

835. ANON., 1986. OLYMPIC DAM TO PROCEED, AUSTRALIAN MINING, JUNE, p.21-26.

Briefly outlines the exploration and evaluation phases of the Olympic Dam project and draws on an eleven volume technical study prepared by FLUOR Australia to describe the characteristics of the ore-body, mining and processing plans, and projected social infrastructure requirements. Two distinct ore types, copper/uranium and gold will be handled through separate facilities. A development timetable is suggested with gold production commencing in mid-1987 and copper/uranium starting in early 1988, based on an initial project commitment in late 1985.

836. DUNCAN, I.J., 1985. THE COMPETITIVE CHALLENGE IN MARKETING OLYMPIC DAM COPPER, URANIUM AND GOLD, IN PAPERS, AUS.I.M.M. CONFERENCE, SOUTHERN QUEENSLAND, JULY 1985, p9-14.

Provides details of the Olympic Dam project, discusses how it can be successfully developed at a time of over-supply and depressed prices in world metal markets, and presents an analysis of future supply and demand estimates in support of claims that prospects are good for the commercial development of the project.

837. GREGSON, I., ET AL., 1986. CHERNOBYL IS EVERYWHERE - CLOSE ROXBY NOW, TRIBUNE, 9 JULY, p8-9.

In the light of both the Chernobyl disaster and claims that Australian uranium could well have been inside the reactor, calls for the closure of the Roxby Downs uranium mine. Questions the impartiality of the company which prepared the Environmental Impact Statement for Roxby and the commitment of the Australian Democrats to their anti-nuclear policy. Discusses the health danger to Roxby residents posed by

radioactive dust contaminating roof water supplies and the attitude of the local Kokatha and Arabana Aboriginal tribes to the mine.

838. KILE, M., 1982. OLYMPIC DAM PROJECT, MINING MONTHLY, MAY, p6-16.

Reviews the background to the debate on uranium mining in South Australia, and outlines the Olympic Dam project, providing information on ore reserves, government agreements, development work undertaken to date, and future plans. Includes an interview with George White, the project's chief geologist.

839. KIRKWOOD, D., 1984. ROXBY BIG BY WORLD STANDARDS, MINING MONTHLY, FEBRUARY, p17-25.

840. OLYMPIC DAM PROJECT, 1984. THE OLYMPIC DAM PROJECT 1984, n.p., 13p.

Provides general information on the Olympic Dam Project including a historical resume; details of the deposit and its planned development; government approvals and agreements; mining and processing developments; environmental aspects and project infrastructure; the products and their uses; and economic benefits.

841. PIERCE, J.N., 1982. WMC METALLURGISTS DEVELOP LOW-COST YELLOWCAKE PRODUCTION, SYDNEY MORNING HERALD, 17 MAY, p10.

Cross References

114, 128, 301, 304, 306, 308, 345, 391, 532, 537, 538, 542, 544, 718, 740, 741, 742

Rum Jungle

842. ANON., 1981. RUM JUNGLE, THE HIDDEN STORE OF URANIUM, AUSTRALIAN HERITAGE, 12, 2ND ED. p2176-2179.

Outlines the discovery of uranium at Rum Jungle in 1949 by prospector John White and its development from 1952 by Consolidated Zinc for the Australian, British and American governments. Describes the difficult working conditions at Rum Jungle as well as the importance of the discovery. Also points out that at the time it was difficult to assess the real impact on the Australian economy as the government would neither define the extent of the deposits nor publish the prices it expected uranium to bring on the world market.

843. BARRIE, D.B., 1982. THE HEART OF RUM JUNGLE: THE HISTORY OF RUM JUNGLE AND BATCHELOR IN THE NORTHERN TERRITORY OF AUSTRALIA, S. AND D. BARRIE, BATCHELOR, NT, 279p.

Provides a detailed history of the Rum Jungle Uranium Project and of its township, Batchelor. Describes uranium exploration in the region and the discovery of uranium at Rum Jungle, and provides information on the development of the project, mining and processing operations, working, living and social conditions in the township, and relations between the mining company and its employees and local residents. Outlines the aftermath of mining and processing operations both in terms of their impact on the environment and of the Batchelor township's history after uranium extraction ceased in 1971.

844. NORTHERN TERRITORY DEPARTMENT OF MINES AND ENERGY, 1986. RUM JUNGLE REHABILITATION PROJECT - UPDATE, WATER (MELBOURNE), 13, 4, p21-22.

Cross References

630, 632, 642, 654, 656, 663, 664, 667, 695

Yeelirrie

845. SCOTT, W.E., 1980. WESTERN AUSTRALIA SETS UP PILOT URANIUM PROJECT, ENERGY INTERNATIONAL, 17, 8, AUGUST, p15-18.

Details progress to date and further development plans for the Yeelirrie uranium venture and describes the geography and geology of the area and proposed uranium mining and milling techniques.

Cross References

54, 743, 744, 745

AUTHOR INDEX

Aarons, B., 209
Aboriginal Land Rights Information Group, 511
Aboriginal Land Rights Support Committee, 437
Adamson, G., 400
Adamson, P.D., 85
Alder, K.F., 593, 603
Alford, P., 552
Alfredson, P.G., 11, 604, 684
Allen, H., 401
Altman, J.C., 523
Amalgamated Metal Workers and Shipwrights Union, 86
Anderson, D.L., 533, 534
Anderson, E.M., 634
Angel, G., 115
Annabell, R., 64
Anson, S., 338
Anthony, D., 210, 782, 783
Armstrong, D., 420
Arndt, H.W., 87, 88, 749
Atkinson, W.J., 634
Australian Atomic Energy Commission, 12, 250, 251, 624
Australian Conservation Foundation, 89
Australian Council of Churches, 90
Australian Institute of Aboriginal Studies, 211, 438, 439
Australian Nuclear Science and Technology Organisation
(formerly Australian Atomic Energy Commission), 252
Australian Railways Union, 381
Australian Science and Technology Council, 288, 670
Australian Uranium Producers Forum, 91, 92, 402
Bailey, P., 635
Ball, D.J., 750, 784
Bambrick, S., 553
Barnett, D.W., 13, 93, 533, 534
Barrett, N., 94, 142
Barrett, R., 95
Barrie, D.B., 843
Barrie, J., 96
Bates, A., 339
Bath, L.J., 53
Battey, G.C., 14, 59, 60, 65
Baxter, P., 97, 98, 605, 751
Bennett, D., 440
Bennett, E.M., 99
Benton, M., 212
Bicevskis, A., 100, 101, 102
Bird, J.R., 103
Birnbauer, B., 594
Bobeiff, P.A., 309
Borschmann, G., 625, 636, 800, 822
Bowen, L., 213
Braithwaite, J., 704

Bray, P., 382
 Brennan, M.H., 253, 752
 Broadbent, S., 299
 Brooks, C.C., 535
 Brooks, G., 441
 Brooks, J.H., 66
 Brotherton, P., 262, 595
 Brown, H., 812
 Browne, A.A., 310
 Browne, E., 104
 Buchanan, D., 311
 Buckley, R., 637
 Buckman, G., 300
 Bureau of Mineral Resources, Geology and Geophysics, 15
 Burrows, D., 823
 Butler, D., 596
 Butler, R., 753
 Butler, S., 105
 Butt, L., 442
 Buttar, P.A., 289, 290
 Button, J.C.E., 708
 Byrne, J., 403, 554, 705
 Caldicott, H., 106, 706
 Camilleri, J., 107, 108, 109, 214, 263, 264, 265, 266, 340, 341, 443, 597
 Campaign Against Mining on Aboriginal Land, 444, 805
 Campaign Against Nuclear Power, 707
 Campaign for Nuclear Safety, 110
 Campbell, H., 638, 665
 Carins, B., 639
 Carne, D., 111
 Carr, R., 301, 383
 Carrick, J., 112, 606
 Carroll, P.J., 445, 446
 Carruthers, E., 708
 Carter, J.D., 54, 67
 Carter, M.W., 708
 Catholic Commission for Justice and Peace, 113, 342
 Chaloupka, G., 447
 Chandra, S., 203
 Chapman, C., 16, 448
 Cheesewright, P., 449
 Chipp, D., 375
 Claditz, N., 450
 Clark, A., 215, 216, 451, 452, 453
 Clarke, B., 454
 Clarke, R., 455
 Clasen, D., 17
 Clayton, G., 536
 Coalition for a Nuclear Free Australia, 114
 Coghill, I., 18
 Cole, D.A., 312
 Coleing, P., 115
 Coleman, P.L., 68

Collins, R., 343
 Collis, P.M., 116
 Committee for Economic Development of Australia Research
 Group, 117
 Commonwealth of Australia, 216A, 671, 754
 Connor, R.F.X., 69, 217
 Conybeare, C.E.B., 19
 Cook, I., 442
 Cook, L.H., 537
 Coombs, H.C., 456
 Costello, J.M., 640, 689, 709
 Coulter, J., 685
 Cousins, D., 456A
 Crommelin, M., 313
 Crook, K.A.W., 118
 Crooks, P., 134
 Dalton, L., 119, 344
 Daniel, W., 120
 Davis, I., 598
 Davy, D.R., 641, 642, 643
 Deans, A., 345, 538
 Denison Australia Pty Ltd., 314
 Department of Aboriginal Affairs, 457
 Department of Home Affairs and the Environment, 315, 735,
 736
 Department of Trade and Resources, 20, 218
 Derrick, S., 21
 Deutschmann, D., 384
 Diesendorf, M., 121
 Doherty, J., 219, 302, 404, 555
 Donn, C.B., 385
 Doyle, B., 607
 Dreyfus, M., 672
 Driessen, A., 22, 23
 Duncan, I.J., 24, 25, 836
 Dunstan, D., 755
 East, T.J., 644
 Edwards, J., 785, 786, 787
 Elliott, M., 122, 458, 459, 512
 Elliston, J.N., 55
 Energy Resources of Australia, 123, 645, 686, 788, 824
 English, D., 219, 302, 404, 555
 Erskine, D., 26, 124, 556
 Ertle, D.H.J., 17
 Ester, H., 608
 Eupene, G.S., 646
 Evans, G., 254
 Falk, J., 125, 126, 127, 142, 168, 291, 405, 599, 756, 757,
 758
 Farmer, R., 235
 Farrer, P., 406
 Farthing, J.W., 53
 Federated Council for the Advancement of Aborigines and
 Torres Strait Islanders, 460

Felix, 513
 Fernandez, R.R., 759
 Finlay, L., 514
 Fisher, D., 626
 Fisk, B., 220, 221, 825
 Fitzgibbons, A., 267, 609
 Fitzpatrick, W.L., 268
 Flood, M., 426
 Ford, J., 292, 293, 687
 Forrester, V., 461
 Fox, R.W., 760
 Fraser, A., 269
 Freeman, P., 27, 222
 Freney, D., 407
 Friends of the Earth (Canberra), 408
 Friends of the Earth (Darwin), 270
 Friends of the Earth (Melbourne), 515
 Fry, G., 346
 Fry, R.M., 647, 667, 673, 688, 710
 Gahan, C., 813
 Gallagher, C., 386
 Galloway, B., 422
 Gaul, J., 134
 Gawenda, M., 128
 Gee, F.J., 316
 Gemmell, W., 103
 George, D.W., 255, 610
 Goldsworthy, R., 303
 Gottliebse, R., 129, 223
 Grabosky, P., 704
 Graves, R., 516
 Gray, E., 557
 Gray, N., 130
 Gray, W.J., 462
 Green, D., 131
 Gregson, I., 837
 Grey, A.J., 28, 29, 30, 132, 133, 134, 224, 317, 558, 559,
 560, 761
 Grover, J., 135, 136, 409, 463, 711
 Grove-White, R., 426
 Hallam, J.R., 304, 318, 561, 712
 Hallem, J., 562
 Hamilton, D.J., 319
 Hamm, H., 563
 Hampson, D.C., 31, 137, 225
 Harding, R., 762
 Hardy, C.J., 14, 138, 564, 689, 690
 Harris, C., 648
 Harris, G., 139, 387
 Harris, S., 140, 464, 465, 540, 541
 Hart, B., 649
 Haselhurst, D., 347, 542, 565, 566
 Hawke, R.J., 388
 Hawkins, B.W., 65

Hawley, J., 524
 Hawthorne, N., 141
 Hayden, B., 763, 764
 Hayes, D., 142, 359
 Hayes, J.E., 567
 Haylock, B.J., 674
 Hayward, N.L., 816
 Hemphill, J.P., 13
 Henderson, I., 143, 226, 271
 Hespe, E.D., 690
 Hickie, D., 466, 713
 Higson, D.J., 144
 Hill, B., 227
 Hill, D., 145
 Hoad, B., 146, 691
 Hoare, J., 467
 Hocknell, K., 468
 Hogarth, M., 469
 Hodge, S.J., 826
 Holdsworth, W., 147
 Holy, Z.J., 714
 Hore-Lacy, I., 148
 Houghton, E., 423
 Howes, K.M.W., 658
 Hubbery, R., 148
 Hurst, J., 389
 Hutton, B., 470, 471
 Hywood, G., 228, 348, 349
 Independent Committee of Inquiry Into Nuclear Weapons and
 Other Consequences of Australian Uranium Mining, 149
 Indyk, M., 765, 766, 767
 James, B., 150
 James, C., 568
 Johns, B.L., 272
 Johnson, R., 472
 Johnston, A., 715
 Jones, B., 350
 Kavanagh, J., 569, 650
 Keegan, D., 351
 Keen, I., 473
 Keher, L.H., 151
 Kelly, P., 229, 352
 Kemeny, L.G., 152, 153, 154, 155, 156, 157, 158, 159, 160,
 543, 570, 571
 Kennedy, L., 768
 Kerr, C., 716, 717
 Kesson, S.E., 692
 Kesteven, S., 474, 525
 Kile, M., 838
 Kirkwood, D., 56, 572, 839
 Kitney, G., 353, 354, 355, 356, 357, 669
 Kneuper, G., 17
 Kornhauser, L., 390
 Korporaal, G., 573

Kvasnicka, J., 721
 Kyle, F., 827
 Lackey, J.A., 651
 Lahey, J., 718
 Lampe, A., 611
 Langton, M., 475, 476, 477
 Lea, J., 828
 Leach, V.A., 719
 Leeks, R., 294, 359
 Leggate, J., 652
 Legge, K., 360
 Letts, G., 305
 Levett, J., 295
 Levins, D.M., 653, 684
 Lichacz, W., 654
 Liddy, J.C., 32, 33, 34, 612
 Lindquist, J., 655
 Livingstone, R.S., 574
 Lloyd, B., 575
 Logue, P., 361
 Lokan, K.H., 719
 Lowe, I., 161, 296, 297
 Lucas, P., 656, 657
 Lukas, I., 478
 Lumb, R.D., 320
 MacCullum, M., 230, 362, 479
 Mack, V., 162
 MacKay, G.A., 109, 576
 MacKellar, J.R., 782
 MacLellan, N., 35
 Malone, P., 544
 Mann, A.W., 36
 Manning, A., 163
 Mansfield, T., 827
 Marks, A.P., 613
 Marr, D., 480
 Marshall, J.K., 658
 Marshall, P., 273
 Marshman, I.W., 720
 Martin, B., 164, 237, 410, 411, 412, 413, 600, 693
 Martin, K., 391
 Mary Kathleen Uranium Ltd., 814
 Mason, C., 376
 Masterson, S., 517
 McCarthy, P., 363, 481
 McColl, M.D., 274
 McDonald, D., 21
 McEwin, I., 545
 McGeough, P., 526
 McKay, A.D., 37
 McKay, T.R., 721
 McLaughlin, D., 722
 McLean, H., 694
 McMahan, P., 546

McNally, P., 721
 McNamara, P., 723
 Meldrum, L., 829
 Melouney, H.F., 165, 547, 695
 Metzner, A., 675
 Miles, G.L., 61, 603
 Milliken, R., 166, 275, 482, 483, 518, 527, 789, 830
 Milne, J., 38
 Milton, P., 231
 Minatome Australia Pty Limited, 727
 Mines Administration Pty Ltd., 729
 Miskelly, N., 826
 Moloney, J., 484
 Moore, J., 485
 Morley, A.W., 659
 Morison, I.W., 322, 667, 688
 Movement Against Uranium Mining, 167, 548, 770, 771, 790
 Moyal, A., 276
 Mullens, P., 168
 Muller, F., 414
 Mulligan, M., 486
 Mullins, P., 415
 Myers, S., 654
 Myhra, S., 577, 660
 Mylonas, J., 169
 Neff, T., 39, 232
 Nelmes, R.H., 323
 Newman, K., 277
 Nicholson, R.D., 313, 324, 325
 Nieuwenhuysen, J., 456A
 Niklaus, P., 487, 488, 489
 Noone, V., 772
 Noranda Australia Ltd., 733, 734
 Northern Territory Department of Mines and Energy, 233,
 490, 676, 844
 Northern Territory Geological Survey, 661
 Northey, D., 386
 NSW Committee of the Council of Resources and Energy, 170
 Ockenden, T., 234
 O'Connor, K., 427
 OECD Nuclear Energy Agency, 40
 O'Faircheallaigh, C., 528, 578
 O'Hara, J., 424
 Olivier, J-P., 696
 Olympic Dam Project, 840
 O'Reilly, D., 364
 Ovington, J.D., 662
 Owen, A.D., 41, 579, 580, 614
 Pancontinental Mining Limited, 491, 731, 732
 Parsons, D., 519
 Patterson, W., 278
 Payne, R., 306
 Peacock, A., 791
 Pearson, O., 607, 792

Pedevrexakis, P., 365
 Perrett, J., 416
 Pescott, R., 793
 Phelps, R., 279
 Phillips, D., 773
 Pickup, G., 702
 Pierce, J.N., 841
 Plunkett, M., 663
 Pockley, P., 280
 Potter Partners, 42
 Pregnell, T., 299
 Purich, P., 549
 Purnell, D., 774
 Queensland Mines Limited, 737, 738
 Queensland Trade Union Anti-Nuclear Lobby, 281
 Quinn, M., 520
 Rabbone, M., 492, 493, 817
 Ramsey, A., 235
 Ranger Uranium Environmental Inquiry, 282, 283
 Ranger Uranium Mines Pty Ltd., 326, 677, 739
 Rann, M., 171
 Raymond, R., 105
 Reed, D., 327
 Rees, A., 392
 Reeves, P., 172
 Refshauge, R., 428
 Reid, A., 366
 Rennie, P., 806, 807
 Resource Information Unit Ltd., 43
 Reynolds, E., 808
 Reynolds, J.O., 173
 Richardson, J.E., 328, 329
 Richardson, M., 697
 Richmond, M.R., 616
 Ringwood, A.E., 174, 175, 692, 698, 699, 700
 Ritchie, I., 664
 Rivkin and Company, 581
 Robert, J., 176
 Roberts, A., 615, 701
 Roberts, J., 494, 495
 Robertson, J., 177
 Robotham, R., 134, 137, 628, 775
 Robotham, F.P.J., 178, 179, 195, 627
 Rosen, R., 724
 Rosendale, P., 21
 Rotsey, W.B., 794
 Rowley, K., 180
 Roxby Management Services Pty Ltd., 740, 741
 Rummary, R.A., 658
 Russ, P., 95
 Ryan, G.R., 44
 Ryan, R., 181
 Saddler, H., 182, 183, 237, 284
 Salmand, J., 70

Samuel, P., 496
 Sandeman, J., 582
 Schneider, R., 238
 Scott, A., 638, 665
 Scott, W.E., 45, 831, 845
 Seddon, T., 417
 Sexton, M., 330
 Shea, L., 184, 477, 497
 Sheehan, P., 583
 Shenton, E., 498
 Sheridan, G., 367
 Shirvington, P.J., 584
 Silver, J.M., 46, 62, 564, 616
 Simper, E., 809
 Simson, S., 239
 Sinclair, I., 795
 Slizys, R.A., 567
 Smith, G., 240
 Smith, M., 666
 Smith, T., 185, 241
 Smith, W.G., 285
 Sonter, M., 331
 South, S.A., 47, 61
 South Australia, Department of Economic Development, 617
 South Australia, Department for the Environment, 730
 South Australia, Department of Environment and Planning, 742
 South Australia, Premier's Department, Trade and Development
 Division, 618
 Spencer, A., 186
 Spratt, D., 499
 Springell, P., 187
 Stanley, O., 307, 529
 Stanton, V., 500
 Steketee, M., 368
 Stewart, J.R., 725
 Street, T., 783, 795, 796, 797, 798
 Supervising Scientist for the Alligator Rivers Region, 679,
 726
 Summers, A., 369
 Suter, K., 426, 776
 Suter, T., 189
 Sutton, P., 601
 Svenke, E., 777
 Swindon, T.N., 332
 Sykes, T., 501
 Symonds, J.L., 190
 Symonds, M., 619
 Tanter, R., 778
 Tarrant, J., 502
 Tatz, C., 503
 Taylor, M., 242
 Thiedeman, M., 562
 Thomas, R.J., 243
 Thompson, G.H., 191

Titterton, E., 192, 193, 194, 195
 Tomlinson, J., 521
 Toohey, B., 244, 370
 Total Mining Australia Pty Ltd., 728
 Townsend, D., 779
 Transport Workers Union (Queensland Branch), 196
 Treloar, C., 308
 Trengrove, C.D., 537
 Triggs, G., 799
 Trood, R.B., 245
 Turner, A.C., 96
 Tuxworth, I., 620
 Uranium Advisory Council, 197, 246, 504, 621
 Uranium Book Collective, 198
 Uranium Enrichment Group of Australia, 622
 Uranium Information Centre, 48, 199, 200, 201, 623
 Uren, T., 371, 585
 Venturini, V.G., 586, 587
 Walker, D.G., 255, 667
 Walker, J., 393
 Walker, J.R., 425
 Walsh, M., 247, 248, 272
 Walters, P., 373
 Walton, A., 374
 Ward, B., 202
 Warner, R.F., 702
 Warner, R.K., 49, 50, 53, 61
 Watson, G.M., 668
 Watson-Munro, C., 105
 Watters, R.A., 203
 Watts, R., 802
 Wentworth, W.C., 57
 Western Australia Environmental Protection Authority,
 Department of Conservation and Environment, 745
 Western Desert Puntukurruparna Aboriginal People, 506
 Western Mining Corporation Limited, 743, 744
 Westfield, M., 585
 Westmore, P., 394
 Wheelwright, E.L., 109
 White, D., 418
 Whyte, J.P., 204
 Willett, K., 815
 Willheim, E., 333
 Williams, H., 205
 Willis, J.L., 334
 Wilmington, S., 669
 Wilson, P., 589
 Wise, S.J.C., 249, 335
 Woods, D.T., 287, 832
 Woolford, D., 590
 Wright, W.J., 62, 591
 Yule, I., 507
 Zehner, R., 828
 Zorn, S., 508

