

APPENDIX B: THE COMMISSION

INTRODUCTION

The Nuclear Fuel Cycle Royal Commission was established by the South Australian Government on 19 March 2015 to undertake an independent and comprehensive investigation into the potential for increasing South Australia's participation in the nuclear fuel cycle. It was required to report to the Governor of South Australia by 6 May 2016.

The Commission's task was to prepare a considered report to government to inform future decision making.

The Commission determined that its process would be:

- evidence-based—meaning that it was concerned with facts and identifying the basis for claims made, rather than seeking views
- open and transparent—enabling interested parties to provide evidence, watch evidence being given, consider and comment on the Commission's tentative findings, and scrutinise the basis for its findings
- independent—forming its views independent of government, industry and lobby groups.

EVIDENCE-BASED

The Commission collected evidence from four sources: written submissions, oral evidence in public sessions, its own research including overseas site visits, and commissioned studies. It carefully considered the reliability and credibility of the evidence it received, and was particularly concerned to understand the basis for many claims made in relation to the issues it considered. This report identifies the evidence the Commission considered to be the most cogent from reliable and credible sources.

Although the Commission considered all the evidence it received, it has not addressed in this report every issue raised in the evidence. Nor has it identified where it has expressly accepted or rejected evidence.

WRITTEN SUBMISSIONS ON OATH

In May 2015, the Commission released four issues papers (focused on exploration and mining, further processing, electricity generation, and storage and disposal of waste), which provided background information related to its Terms of Reference, and invited interested persons to respond to questions. People and organisations were given three months to make written submissions on oath as evidence for the Commission to consider.

The Commission received more than 250 submissions from the community, organisations, industry and government.

Anyone who contacted the Commission seeking help to comply with its process was assisted. At the outset the Commission made public that it would, by arrangement, receive submissions by other means. As a result, it took several oral submissions.

ORAL EVIDENCE IN PUBLIC SESSIONS

The Commission held a series of public sessions from September to December 2015, and in April 2016, on topics of interest to it. In those sessions it received oral evidence on oath from persons with relevant experience and expertise.

The public sessions were conducted informally, with a view to encouraging discussion with witnesses on central topics to draw out information of particular relevance. Witnesses gave evidence to the Commissioner on the basis of questions from Counsel Assisting. Most public sessions were conducted in the Commission's session room in Adelaide, and all sessions were streamed live on the Commission's website. Transcripts and videos were later made available to be downloaded from the website.

Over 37 sitting days, the Commission heard from 132 witnesses from Australia and overseas, including from Belgium, Canada, Finland, Germany, South Korea, Spain, Switzerland, the United Kingdom and the United States of America.

COMMISSION RESEARCH, INCLUDING VISITS TO FACILITIES OVERSEAS AND IN AUSTRALIA

The Commission spoke to representatives from governments, regulators, industry proponents and opponents during visits to Austria, Belgium, Canada, Finland, France, Japan, South Korea, Switzerland, Taiwan, the United Arab Emirates, the United Kingdom and the United States (see Figure B.1).

A significant part of the visit to Japan was to the Fukushima district and the Fukushima Daiichi plant to witness firsthand the devastation of the 2011 tsunami and nuclear accident.

COMMISSIONED STUDIES

The Commission engaged organisations with expertise to undertake detailed assessments of the potential commercial viability of establishing nuclear facilities in South Australia to undertake further processing, to generate electricity, and to store and dispose of used fuel and nuclear waste. It also sought an analysis that considered the wider economic effects of investments made in developing those facilities.

It commissioned expert assessments in relation to fuel leasing, the risks of transporting used fuel, how safety cases are undertaken for geological disposal facilities, and skills requirements for the development of nuclear facilities.

The views expressed in these reports are the professional views of the organisations and individuals that prepared them. As such, the Commission treated these reports in the same way as evidence—and the extent to which they have been accepted and relied on is identified in the findings and the reasoning in support of those findings.

OPEN AND TRANSPARENT

The Commission conducted its process with the objective of engaging all South Australians, to encourage feedback, scrutiny and informed debate on the facts and the evidence.

Throughout the process, it published on its website the written submissions it received, information about its international visits, the oral evidence and transcripts, and its tentative findings. It provided information about its key staff and advisors, and disclosed any of their relevant interests.

The Commission held two series of metropolitan and regional information sessions around South Australia, first to inform the public about the role and scope of the Commission's inquiry and the submissions process, and subsequently to explain its tentative findings and invite responses. A wide range of community information sessions were held in metropolitan and regional areas throughout the state (see Figure B.2).

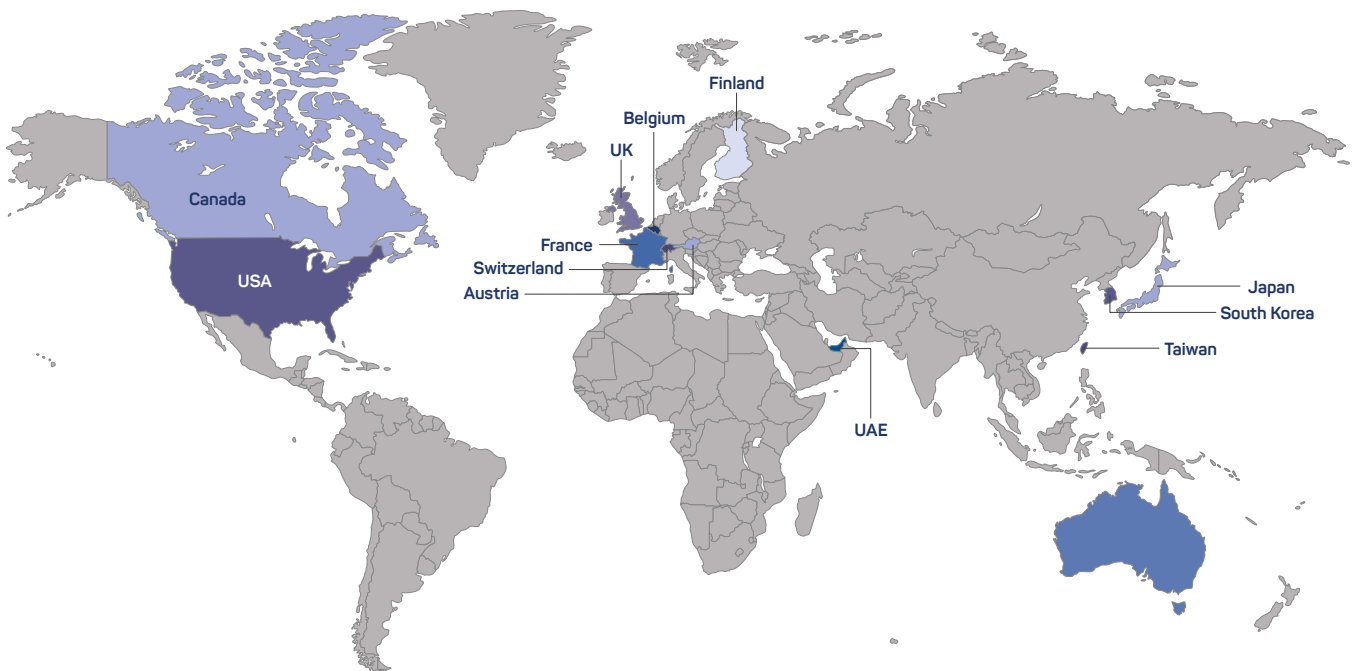


Figure B.1: Countries visited by the Commission

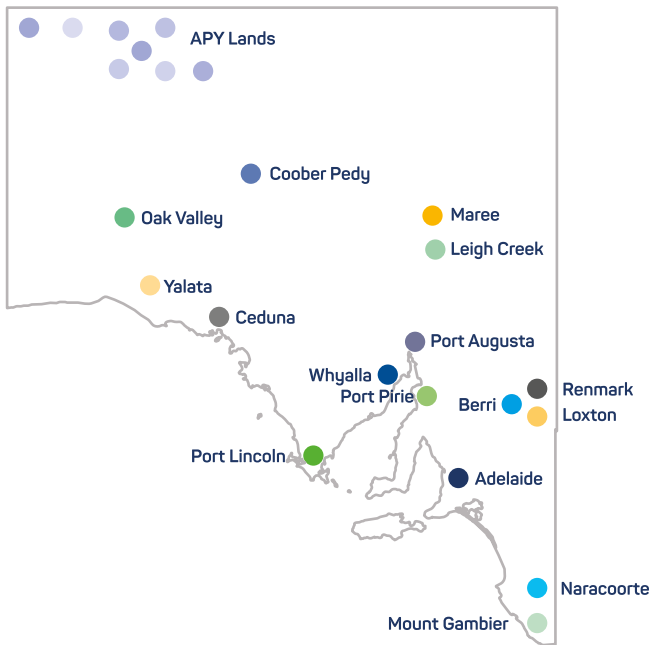


Figure B.2: South Australian locations visited by the Commission

The release of the Tentative Findings on 15 February 2016 shared with the community the Commission's preliminary thinking on issues it considered important, based on evidence. The Commission sought scrutiny by inviting public responses within five weeks. It received more than 170 direct responses. The Commission read all responses and they informed the structure and range of issues addressed in the final report.

The Commission engaged regularly with Aboriginal communities, including through public information sessions. It financially supported the convening of two meetings of the South Australian Native Title Congress (in Port Augusta and Adelaide) to discuss issues relating to the Commission. The Commission also met with the State Aboriginal Heritage Committee and other representative groups and individuals.

During its many visits to Aboriginal communities, the Commission provided an interpreter and written materials in Pitjantjatjara to assist with the communication process.

INDEPENDENT

The Commission had its own staff and engaged its own experts.

COMMISSION STAFF

The Commission had a range of technical, legal support and administrative staff led by Commissioner, Rear Admiral the Honourable Kevin Scarce AC CSC RAN (Rtd).

Chief of Staff

Greg Ward

Legal

Chad Jacobi, Counsel Assisting
Lucinda Byers, Solicitor Assisting
Bonnie Russell, Solicitor
Wesley Taylor, Solicitor

Technical

Dr Julian Kelly, Team Leader

Research Officers

Dr Massey De los Reyes
Ashok Kaniyal
Laura Rollison
Rebecca Stohr

Research Assistants

Meri Dharmarajah
Dr Geordan Graetz
David McGranaghan
Dr Christiaan Ridings
David Scroggs

Administration and communications

Jon Bok, Regional Engagement Manager
Helen O'Brien, Business and Information Manager
Lyn Pobke, Executive Assistant
Jenny Turner, Senior Communications Manager
Brittany Mara, Administration Officer
Jacque Mullen, Records Officer

Editor

Rowena Austin

ADVISORY COMMITTEES

The Commission was supported by advisory committees, which provided valuable technical advice on issues of concern to the Commission.

Expert Advisory Committee

An Expert Advisory Committee was established to advise and guide the Commission on a broad range of topics throughout its inquiry. The committee provided comment on drafts of the issues papers, the tentative findings and this report. Its members were:

- Professor Barry Brook, Chair of Environmental Sustainability, University of Tasmania
- Mr John Carlson AM, former Director-General of the Australian Safeguards and Non-proliferation Office
- Professor Ian Lowe AO, past President of the Australian Conservation Foundation and Emeritus Professor of Science, Technology and Society, Griffith University
- Dr Timothy Stone CBE, Visiting Professor at University College London
- Dr Leanna Read, South Australia's Chief Scientist and expert in biotechnology.

Socioeconomic Modelling Advisory Committee

A Socioeconomic Modelling Advisory Committee was established to advise on the development of the economic assessments and their interpretation. Its members were:

- Professor Ken Baldwin, Director of the Energy Change Institute and Deputy Director of the Research School of Physics and Engineering, Australian National University
- Professor Quentin Grafton, Chairholder of the UNESCO Chair in Water Economics and Transboundary Water Governance, Australian National University
- Professor Paul Kerin, Professor and Head of School of Economics, University of Adelaide
- Professor Sue Richardson, Matthew Flinders Distinguished Professor, Flinders University
- Professor Mike Young, Professor, Faculty of Professions, University of Adelaide.

Radiation Medical Advisory Committee

The Commission also engaged medical experts as a Radiation Medical Advisory Committee to advise on current research and knowledge on the health effects of radiation, and the interpretation of medical evidence received by the Commission. Its members were:

- Professor Roger Allison, Executive Director, Cancer Care Services, Royal Brisbane and Women's Hospital
- Professor Dorothy Keefe, Professor of Cancer Medicine, University of Adelaide; Medical Oncologist, Royal Adelaide Hospital Cancer Centre; and Clinical Ambassador, Transforming Health, SA Health
- Dr Leanna Read, South Australia's Chief Scientist and expert in biotechnology
- Professor Daniel Roos, Professor, School of Medicine, University of Adelaide; Senior Radiation Oncologist, Royal Adelaide Hospital.

ACKNOWLEDGEMENTS

Preparing a relevant, detailed and evidence-based report on a topic that may affect all South Australians, including future generations, was an important task. The Commission's staff understood its magnitude and worked with determination and integrity to meet the report deadline. The Commission acknowledges the valuable contributions of its staff and advisors to allow that to occur.

The Commission acknowledges the contributions of its consultants, contractors and the numerous individuals who provided valuable assistance to the Commission.

The Commission extends its gratitude to the many experts who generously provided their time to assist it to both gather and understand a vast amount of information on a range of complex and technical topics.

WITNESSES AT PUBLIC SESSIONS

TOPIC 1: CLIMATE CHANGE AND ENERGY POLICY

*9, 14 and 23 September 2015; 23 October 2015;
2 and 10 December 2015*

Professor Ross Garnaut AO
Ms Anna Skarbek
Professor John Quiggin
Mr David Swift and Ms Nicola Falcon
Associate Professor Mark Diesendorf
Professor Graham Nathan and Dr Robert Dickinson
Professor David Karoly
Professor Tom Wigley
Professor Ken Baldwin
Professor John Fletcher

TOPIC 2: THE NATIONAL ELECTRICITY MARKET

18 September 2015

Mr David Swift
Mr Rainer Korte, Mr Hugo Klingenberg and Mr Brad Harrison
Mr Craig Oakeshott
Mr Mark Vincent

TOPIC 3: GEOLOGY AND HYDROGEOLOGY OF SOUTH AUSTRALIA

22 and 23 September 2015

Professor David Giles
Professor Graham Heinson
Dr Steve Hill
Dr Andy Barnicoat and Mr Martin Wehner
Mr Neil Power and Mr Lloyd Sampson

TOPIC 4: LOW-CARBON ENERGY GENERATION OPTIONS

*29 September 2015; 1, 7 and 30 October 2015;
5 November 2015*

Mr Donald Hoffman
Mr Andrew Stock
Mr Richard Turner
Mr Jonathan Whalley
Mr Paul Graham
Mr Arjun Makhijani
Dr Keung Koo Kim and Dr Kyun S Zee
Ms Tania Constable and Professor Peter Cook
Mr Thomas Marcille
Dr Eric Loewen
Mr Michael McGough
Ms Rita Bowser and Mr Michael Corletti

TOPIC 5: ESTIMATING COSTS AND BENEFITS OF NUCLEAR ACTIVITIES

6 October 2015

Mr Brian Gihm
Mr David Downing and Mr Kenneth Green
Mr Tim Johnson
Mr Robert Riebolge and Mr David Lenton
Mr Craig Mickle and Dr Jyothi Gali

TOPIC 6: ENVIRONMENTAL IMPACTS: LESSONS LEARNED FROM PAST MINING AND MILLING PRACTICES IN SOUTH AUSTRALIA (CASE STUDIES: PORT PIRIE RARE EARTHS TREATMENT FACILITY AND RADIUM HILL)

8 October 2015

Mr Kevin Kakoschke OAM
Mr Greg Marshall and Mr Tony Ward
Mr Keith Baldry, Mr Graham Palmer and Dr Artem Borysenko
Dr Paul Ashley

TOPIC 7: EXPANSION OF EXPLORATION AND MINING

14 October 2015; 10 November 2015

Dr Andrea Marsland-Smith
Mr Keith Baldry, Mr Daniel Bellifemine and Ms Gabrielle Wigley
Ms Jacqui McGill
Dr Vanessa Guthrie
Dr Ted Tyne and Mr Greg Marshall

TOPIC 8: ADDING VALUE TO SOUTH AUSTRALIAN RADIOACTIVE MATERIALS

15 October 2015

Professor Frank von Hippel
Mr James Voss
Dr Michael Goldsworthy
Dr Patrick Upson

TOPIC 9: NUCLEAR REACTOR SAFETY AND REGULATION

21 October 2015

Dr Gordon Edwards
Professor Per Peterson
Mr Hefin Griffiths and Mr Mark Summerfield
Mr Peter Wilkinson

TOPIC 10: NUCLEAR ACCIDENT: FUKUSHIMA DAIICHI

22 October 2015

Dr Stephen Solomon
Mr Gustavo Caruso
Dr Mike Weightman

TOPIC 11: EFFECTS AND THREATS OF RADIATION

27 October 2015; 15 December 2015

Dr Helen Caldicott
Dr Carl-Magnus Larsson
Professor Geraldine Thomas
Mr Steve Fisher

TOPIC 12: INSURING AGAINST NUCLEAR ACCIDENT

5 November 2015

Mr Steven McIntosh
Mr Mark Popplewell

TOPIC 13: COMMUNITY ENGAGEMENT AND NUCLEAR FACILITIES – GENERAL PRINCIPLES

9 November 2015

Professor Daniela Stehlik
Professor Hank Jenkins-Smith
Ms Barbara Company

TOPIC 13: COMMUNITY ENGAGEMENT AND NUCLEAR FACILITIES—ENGAGEMENT WITH ABORIGINAL COMMUNITIES

12 and 16 November 2015

Mr Bob Watts
Mr Parry Agius
Mr Keith Thomas
Mr Andrew Collett AM, Mr Christopher Larkin,
Mr Dennis Brown, Dr Scott Cane, Mr Richard Preece and
Mr Patrick Davoren

TOPIC 14: TRANSPORTATION OF NUCLEAR MATERIALS

17 November 2015

Dr Edwin Lyman
Mr Frank Boulton
Mr Jack Dillich and Dr Samir Sarkar
Mr Hefin Griffiths
Mr Alastair Brown

TOPIC 15: LOW AND INTERMEDIATE LEVEL WASTE STORAGE AND DISPOSAL

18 November 2015

Mr Patrick Davoren
Dr Dirk Mallants
Dr Sami Hautakangas
Mr Emilio García Neri

TOPIC 16: HIGH LEVEL WASTE STORAGE AND DISPOSAL

23, 24 and 25 November 2015; 4, 5 and 6 April 2016

Dr Thomas Cochran
Mr Timo Äikäs
Dr Sami Hautakangas
Mr Alun Ellis
Dr Mark Nutt and Ms Natalia Saraeva
Dr Charles McCombie
Dr Maarten Van Geet
Dr Felix Altorfer
Professor Rodney Ewing

TOPIC 17: SECURITY AND NON-PROLIFERATION RISKS

25 November 2015; 2 December 2015

Professor Henry Sokolski
Dr Robert Floyd
Professor the Hon Gareth Evans AC QC

TOPIC 18: FINANCING AND INVESTMENT IN NUCLEAR FACILITIES

30 November 2015; 2 and 10 December 2015

Mr Mark Higson
Mr Brendan Lyon and Mr Jonathan Kennedy
Dr Darryl Murphy
Mr David Knox

TOPIC 19: OPPORTUNITIES IN NUCLEAR MEDICINE

3 December 2015

Mr Prab Takhar and Professor Eva Bezak
Mr Marco Baccanti
Mr Shaun Jenkinson

TOPIC 20: NUCLEAR EDUCATION AND SKILLS DEVELOPMENT

3, 4 and 10 December 2015

Professor Jon Billowes and Dr John Roberts
Dr Adrian Paterson
Professor Aidan Byrne
Mr Ross Miller

TOPIC 21: REGULATORY OVERSIGHT

11 December 2015

Mr Donald Hoffman
Dr John Loy
Mr John Carlson AM

PUBLISHED SUBMISSIONS

Abbott, James

Aboriginal Congress of South Australia

Adelaide Hills Climate Action Group

Alchemides Pty Ltd

Alinytjara Wilurara Natural Resources
Management Board

Askin, Henry

Association of Mining and Exploration
Companies (AMEC)

Anderson, Christine

Anderson, Geraldine

Anggumathanha Camp Law Mob

Australian Nuclear Science and
Technology Organisation (ANSTO)

AREVA Resources Australia Pty Ltd

Arius Association

Australian Radiation Protection
Society SA

Australian Academy of Technological
Sciences and Engineering (ATSE)

Australian Democrats

The Australian Government

The Australian Industry Group

The Australia Institute

Australian ITER Forum

Australian Nuclear Association

Australian Nuclear Free Alliance

Australian Workers Union

Bereznai, George

BHP Billiton

Bluegreen Power Technologies Pty Ltd

Bolton, Peter

Bowman, David

Brooks, Colin

Brown, Bobby

Brown, James

Burke, Robert

Business SA

Caldicott, Helen

Camarsh, Christopher; Carnegie,
Georgina; Herring, J. Stephen
and Cassidy, Maja

Campbell, Ashley

Campbell Law

Cancer Council, Australia

Catt, Claire

Cauldron Energy Ltd

Cenic, Goran

Centre for Culture Land and Sea Inc.

Centre for Energy Technology, University
of Adelaide

Chalmers, Mark

Chamber of Minerals and Energy WA

City of Port Adelaide and Enfield

Clean Bight Alliance Australia

Collett, John

Conservation Council of WA

Construction, Forestry, Mining & Energy
Union SA (CFMEU)

Cooper, Mark (Institute for Energy
and the Environment)

Cooper, Tim

Cusack, Mary

Dickinson, Robert

Diesendorf, Mark

Dingle, Margaret

District Council of Robe

Doctors for the Environment

Drummond, Michelle

Duncan, Ian

Durbidge, Colin John

East Cliff Consulting

Eastman, Robert

Eckermann, Dayne

Economic Development Board SA

Edwards, Sean

Electrical Trades Union

Emerson, John

Energy Policy Institute of Australia

Energy Supply Association of Australia

Engineers Australia

ENuff

Environmental Defenders Office

Faulkner, Carol

Fiedler, Alexander

Fisher, Bill

Flew, Brian and May, Ivan

Fraser, Colin Malcolm

Frazer Nash Consultancy

Friends of the Earth Adelaide

Friends of the Earth Adelaide, the
Australian Conservation Foundation,
and the Conservation Council of SA

Friends of the Earth Australia, the
Australian Conservation Foundation,
and the Conservation Council of SA

Gale, Luke

Gartrell, Grant

GE Hitachi Nuclear Energy

Geiser, Tom

GeoSynthesis Pty Ltd

Giles, Mnemosyne

Gladstone Uniting Church

Glover, Graham

Golder Associates

Grano, Stephen

Gray, Terry

Grenatec

Grundy, Ken

Gun, Richard and Crouch, Philip

Harris, Paul

Heck, Ulrike

Higson, Donald

Hine, Garry

Hudson, Geoff

Hunter, Sally	Ngarrindjeri Regional Authority Inc.	South Australian Chamber of Mines and Energy (SACOME)
Illert, Chris	Ngoppon Together Inc	Starcore Nuclear
International Campaign to Abolish Nuclear Weapons (ICAN), Australia	Nicholson, Martin and Archer, Oscar	Steele Environment Solutions
Jakobsson, Darren	Niven, Robert (School of Engineering and Information Technology, UNSW)	Stewart, James
Jans, Peter	Noonan, David	Studsvik
Josephite SA Reconciliation Circle	Nuclear Operations Watch Port Adelaide (NOWPA)	Sykes, Pamela
JRHC Enterprises Pty Ltd	Orszanski, Roman	TAFE SA
Kaurna Yerta	The Outback Communities Authority	Tansing, Stephen
Keane, Rebecca	Parkinson, Alan	Thiselton, Susan
Kelly, Tim	Pearson, Clive	Thorium Energy Generation
Kenyon, Tom	Penfold-Newton, Margaret	Trebilco, Peter
Khurana, Ashok	Poetzl, Yuri	Tops, Sebastianus
Kokatha Aboriginal Corporation	Prospect Local Environment Group (PLEG)	Toro Energy
Langley, Paul	Prospect Residents Association	The University of Adelaide
Law Society of South Australia	Quail, Ivan	Upper Spencer Gulf Common Purpose Group (USPCPG) and Pt Augusta Council
Lester, Karina	Quiggin, John	Uranium Council
Lester, Yami	Reid, David	Uranium Free NSW
Lerc, Loraine	Repower Port Augusta	VTT Technical Research Centre
Ludlam, Scott	Resource Solutions - Australia	Waite, Charles
Luke, Timothy (Catalyst Energy)	Resources and Engineering Skills Alliance	Wakelin Associates Pty Ltd
Mace Australia	Reynolds, John	Waldon, Gregory Paul
Mahomed, Irene	Risk Frontiers Macquarie University	The Warren Centre for Advanced Engineering
Maralinga Tjarutja and Yalata Community Incorporated	Rowbottom, Gary	Wauchope, Noel
Marsh, Enice	Rowland, Phillipa	Wedd, Malcolm
Martingale Inc.	Russell, Geoff	West Mallee Protection
McEwin, Kathryn	Scantech	Williams, Mike
McGovern, Annie	Scott, Andrew	Women's International League for Peace and Freedom
Medical Association for Prevention of War Australia Inc. and Public Health Association Australia	Skinner, Vivienne	Woodley Davis, Peter
Medlin, Clare	South Australian Native Title Service (SANTS)	World Nuclear Association
Minerals Council of Australia	Suthern, Kerry	Wozniczka, Les
Modistach, Ian	Siemag	Yankunytjatjara Native Title Aboriginal Corporation
Monceaux, Dan	Silex Systems Ltd	Yeeles, Richard
Murphy, Barry	Smart, Roger	Young, Frank
Murphy, Graeme	SMR Nuclear Technology Pty Ltd	
Newlands, John		