



**Forum on Development of ELF Standard  
27 February 2008**

**Summary of meeting**

ARPANSA convened a forum to discuss progress in the development of an exposure standard on ELF electric and magnetic fields at its Yallambie office on 27 February 2008. The meeting was chaired by the CEO of ARPANSA, Dr John Loy, and attended by members of the ELF Working Group (WG), the ELF Consultative Group (CG), members of the Radiation Health Committee (RHC) and electricity supply and distribution industry representatives. The attendees were:

**Dr John Loy**, CEO of ARPANSA

**Prof Andrew Wood**, Brain Sciences Institute, Swinburne University, (Chair, ELF WG)

**Mr Merv Atcheson**, Inductotherm, (ELF CG)

**Dr Brad Cassels**, Manager, Radiation Safety Section, Department of Human Services (RHC member)

**Mr Simon Critchley**, Director Radiation Health, Queensland Health (Chair RHC)

**Prof Nick de Klerk**, Head, Department of Biostatistics & Genetic Epidemiology, Telethon Institute for Child Health Research, University of WA, (ELF WG)

**Mr Keith Dessent**, Secretariat, ARPANSA (ELF CG)

**Mr Thanh Doan**, SP-Ausnet Pty Ltd, (ELF WG)

**Mr Morrie Facci**, Radiation Safety Section Department of Human Services, Victoria, (ELF CG)

**Dr Nick Ferris**, Chair MRI Reference Group, RANZCR, (ELF CG)

**Mr Kent Gregory**, Department of Medical Physics, Royal Adelaide Hospital, (ELF WG)

**Mr Tony Gunn**, Onesteel, (ELF CG)

**Mr James Hart**, Energy Australia

**Dr Bruce Hocking**, Consultant in Occupational Medicine, (ELF CG)

**Mr Richard Hoy**, Consultant-EMF, Energy Networks Association Ltd, (ELF CG)

**Mr Ken Karipidis**, Scientist, EMR Section, ARPANSA, (ELF WG)

**Mr Michael Kilgariff**, Director, Industry & Technical Policy, Energy Networks Association Ltd

**Mr John Lincoln**, ELF WG public representative (ELF WG)

**Mr Don Maisch**, Consumers Federation of Australia, (ELF CG)

**Dr Lindsay Martin**, Manager, EMR Section ARPANSA, (ELF WG)

**Ms Lyn McLean**, EMR Australia, (ELF CG)

**Mr Alan Melbourne**, Secretariat, ARPANSA (ELF WG)

**Mr Allan Mulvena**, OHS Officer, Communications, Electrical & Plumbing Union (Electrical Div) (ELF CG)

**Mr Kevin Nuttall**, Power Quality Manager, Energex (ELF CG)

**Dr Colin Roy**, Director, NIR Branch, ARPANSA, (ELF WG)

**Mr Liam Wilson**, ALCOA, (representing Alcoa's ELF CG member)

**Ms Jill Wright**, Manager, Small Business Unit, Workplace Health & Safety Queensland, (ELF WG)

The forum provided an opportunity for participants to receive information from the working group on the current state of progress and the working group's intended responses to public submissions, and to raise issues and discuss their concerns with the working group and other stakeholders.

Dr Loy opened the forum by noting the particular role of ARPANSA in promoting uniformity of radiation protection regulatory frameworks. He described the role of the Radiation Health Committee, and the development of the National Directory for Radiation Protection, and the Health Ministers' commitment, on behalf of their jurisdictions, to adoption of its provisions.

Dr Loy also described the process undertaken to develop the ELF Standard since the Radiation Health Committee approved the development plan for the Standard in 2001. He noted the huge task for the working group to evaluate the wide range of research literature relevant to the Standard, and pointed out the consultation and regulatory impact assessment process undertaken. Sixty-four public submissions had been received and these had now been reviewed by the working group.

Presentations given to the forum were:

Philosophy of Standard Setting (Prof Andrew Wood)  
The International Situation (Dr Colin Roy)  
Precaution on Childhood Leukaemia (Dr Colin Roy)  
Magnetic Resonance Imaging Issues (Dr Lindsay Martin)  
The Regulatory Impact Statement Process and Best Practice Regulation (Mr Alan Melbourne)  
The Regulatory Impact Statement (Dr Colin Roy)  
Compliance considerations – NHMRC Guidelines and ARPANSA Standard (Mr Thanh Doan)

Copies of the slides for these presentations are available at  
[www.arpansa.gov.au/news/events/elf.cfm](http://www.arpansa.gov.au/news/events/elf.cfm)

The following issues were raised during discussion after presentations, and during the open forum:

- The language and terminology could be simplified and made more consistent to give greater clarity to the Standard. An external editing process was proposed to achieve this end. It was suggested that graphical presentation of the limits be considered. Some simple information on implementation issues could also be considered, possibly on the web site.
- The issue of whether the limits were instantaneous or time-weighted average needed to be clearer
- A number of issues with MRI, including the 2 tesla limit for static fields, operator exposure in interventional MRI, assessing exposure from time-varying fields, and consideration of defining precautionary measures related to specific frequencies
- The discussion on precaution in the RIS should be separate from arguments about the limits of exposure, including the appropriateness of using an assumption of causality for childhood leukaemia in costing the benefits of the Standard
- The Standard needs a clear definition of precaution and explanation of how and when it should be applied
- There either should be more precautionary measures in the body of the Standard or the title should not include "measures". Alternatively, precautionary measures could be included in separate documents

- A clear statement of the health issues being protected by the Standard should appear early in the document
- A magnetic field occupational reference level of 9000  $\mu\text{T}$  for limbs is being considered
- Clarification of the difference in limits for head and torso in terms of different synaptic effects to the brain and the spinal cord (CNS)
- Separate the childhood leukaemia and magnetophosphene issues better in respect to describing the protection provided by the Standard
- How would the possibility of exposure during fault currents be addressed, or should it be removed from the Standard?
- Can the Standard give more flexibility for working around live conductors, especially in cable tunnels and pits?
- ICNIRP is considering exemptions on some occupational situations. Would ARPANSA consider something similar?
- Industry would require help from ARPANSA in modelling high exposure situations
- That it was inconsistent to propose that the ELF Standard be a non-regulated Standard, when ELF was classified by IARC as a 2B carcinogen, and when the RF Standard was a regulated Standard although RF was not classified as a 2B carcinogen
- While the Standard is expected to be non-regulated, it is not clear what this status means in terms of management by jurisdictions and compliance
- Occupationally exposed women could get 3 times higher exposure to the fetus than was previously allowed, which is inconsistent with a precautionary approach
- Would signage be effective for the purpose intended?
- How would protection be ensured in a "controlled activity"?
- The Consultation RIS uses the assumption that compliance with the Standard will eliminate the risk of childhood leukaemia
- The Consultation RIS still needs to be revised and electricity asked to be involved and to provide revised industry costs
- Ms McLean tabled written comments on the Standard. These are also available with the presentations at the web link given above

Dr Loy summarised the proceedings and the way forward, as follows:

- Presentations from the forum would be made available on the ARPANSA web site
- A summary of proceedings would be prepared
- Participants in the forum would be given a chance to comment quickly on the summary, before it is presented to the Radiation Health Committee on 12-13 March 2008
- Editing of the Standard for readability and consistency would be arranged
- The issues in completing the Standard had now been well defined
- Decisions were needed on how to address some of these issues
- The expected timelines and remaining considerations and processes to finalise the Standard were:
  - A progress report to the March 2008 Radiation Health Committee meeting
  - A near final draft will be prepared for the next RHC meeting in July

- The Consultative Group will be provided with a copy for comment before the meeting, along with the final draft regulatory impact statement and the submissions and responses to the public consultation
- These documents will also be made public via the web site at about the same time
- The final version of the Standard and RIS will be prepared for the November 2008 meeting of the RHC
- The Consultative Group would be involved in the final processes between July and November