

## **POSITION PAPER ON RADON IN SHOW CAVES**

- ACKMA Inc recognises that the recently completed study by the Australian Radiation Laboratory and others under a Worksafe Australia research grant has identified certain cave tours in Australia where average radon levels exceed 1,000 Becquerels per cubic metre.
- Firstly, ACKMA Inc recognises that the radon levels determined in the Worksafe Australia study present no risk to members of the public visiting Australia's tourist caves. Radon does not present any risk to unborn children.
- Further it is recognised that 1,000 Becquerels per cubic metre has been identified by the appropriate authorities as the "action level" at which management must take action to meet occupational health and safety responsibilities by such actions as modifying the work place, work practices and/or monitoring worker's exposures.
- ACKMA Inc. also recognises that individual workers must not exceed an exposure greater than 50 milli Sieverts (mSv) in any one year nor an average of 20 mSv per year over any consecutive five year period and that if an exposure of 2 mSv per year can be expected monitoring of that individuals exposure is required. It should be noted that an annual exposure of no more than 5 mSv per year is recommended for those under 18 years of age.
- Accordingly ACKMA Inc. makes the following recommendations to its members, to management agencies and to radiation monitoring authorities that where action levels have been identified:
  1. no cave employee should receive more than 20 mSv per year, in any one year, except under exceptional circumstances. If 20 mSv is exceeded the annual dose must not exceed 50 mSv nor may an average annual dose of 20 mSv be exceeded over a five year period
  2. it should be recognised that any alteration to cave environments to rectify radiation levels may not be feasible and should not be attempted without extensive planning and very careful monitoring
  3. management agencies should take all feasible steps to ensure that their employees understand the issues including those factors which contribute to increased risk such as smoking and recreational caving or exposure to other radon rich environments
  4. cave workers who can be expected to be exposed to more than 2 mSv per year should, as a condition of employment, wear personal radiation dose badges during working hours
  5. dosimeters should be either "read" by the Australian Radiation Laboratories or arrangements should be made to cross-calibrate dosimeters with that laboratory to enhance the collective experience of all concerned with this issue
  6. management agencies should ensure that worker's exposures are monitored on a three monthly basis for at least 12 months and that a thorough expert review of the doses should be made after that time

7. management agencies should investigate rostering and other worker management practices to lower the exposure of cave workers to radiation (e.g. by working on tours with levels below the action levels)
8. management agencies should support ongoing management-oriented research with funding or “in kind” contributions
9. consideration should be given to using tour specific as well as personal dosimeters
10. where dose estimates are high, consideration should be given to obtaining more accurate estimates by direct measurement of relevant radon-to-dose conversion factor.