

THORIUM HAZARD

1188. Hon Lynn MacLaren to the Minister for Agriculture and Food representing the Minister for Mines and Petroleum:
- (1) I refer to the thorium hazard in welding and Alcoa red mud waste at Kwinana, Perth Motorplex, Pinjarra, Wagerup and Worsley, and ask if the Minister is aware that thorium is present in the alumina product shipped by Alcoa?
  - (2) Is the Minister aware that Alcoa has been advised that it should bury its red mud waste under two metres of uncontaminated topsoil to avoid windswept residue, and attenuate radon and thoron emanations into the atmosphere?
  - (3) What estimates have been made of the extra radiation dose inhaled by residents near Alcoa facilities and Alcoa workers?
  - (4) Is the Minister aware that the process known as ‘dry stacking’ dramatically increases dust, radon and thoron emissions from red mud waste?
  - (5) What measurements have been made on thorium and radium decay products including radium, polonium, bismuth, lead, thallium, protactinium, astatine in Alcoa sites?
  - (6) Is the Minister aware that a sensitive non-invasive test is available to determine thorium body load, involving measurement of exhaled thoron?
  - (7) Will the Minister make arrangements to provide this test, free of charge, to workers, past and present, as well as residents near Alcoa sites who have reason to believe they have accumulated a body load of thorium and its decay products?
  - (8) Is the Minister aware that the Australian Nuclear Science and Technology Organisation (ANSTO) has measured thorium in red mud at 535 to 911 parts per million (ppm) and uranium 10 to 37 ppm?
  - (9) Is the Minister aware that ANSTO found its own measurements consistently higher than those reported by Alcoa?
  - (10) If yes to (9), has that fact been adequately explained?

**Hon Ken Baston replied:**

The Department of Mines and Petroleum advises:

- (1) The Department of Mines and Petroleum (DMP) has advised that the composition of exported mineral products does not fall under the provisions of the *Mines Safety and Inspection Act 1994*.
- (2) No
- (3) This question should be asked of the Minister for Health.
- (4) This question should be asked of the Minister for Environment.
- (5) There is no requirement under the provisions of the *Mines Safety and Inspection Act* for Alcoa to provide detailed reporting of thorium and radioactive decay products to DMP.  
  
In regard to Alcoa of Australia Limited’s (Alcoa’s) materials, the WA bauxite ore from which alumina is extracted in the Bayer refining process contains traces of naturally occurring radionuclides, which are also found in rock and soils in general, and is therefore categorised as NORM (naturally occurring radioactive material). Alcoa has for more than 30 years conducted extensive studies on the department of these trace radionuclides during bauxite processing to ensure there are no radiological health risks for the workforce or for the general public.
- (6) Yes
- (7) No
- (8) Yes. However, the Australian Radiation Protection and Nuclear Safety Agency’s 2008 research shows that there is minimal transfer of naturally occurring radioactive material from bauxite to alumina.
- (9) No
- (10) Not applicable