

Uranium in drinking water supply at Eton



Where does uranium come from?

Uranium is a naturally occurring radioactive element that is present at very low levels in rocks and soils in many parts of Australia. Food and drinking water are the main sources of uranium intake for the general public. Shellfish, vegetables, cereals and seafood contribute the highest concentrations of uranium to the diet. Generally, only a very small amount of the total intake of uranium comes from drinking water.

Uranium in drinking water is usually naturally occurring. Drinking water can be contaminated with uranium by

leaching or runoff from soil, rocks and sediment or from windblown dust. Groundwater sources such as bores are at a greater risk of containing uranium than surface or rainwater supplies.

Are there health concerns associated with uranium?

Uranium is a heavy metal which, if it is ingested at a sufficiently high concentration, can have both toxic and radiological effects on humans. In humans and experimental animals, the main toxic effect of short-term exposure to high concentrations of uranium is inflammation of the kidney. Short-term exposures to low levels of naturally occurring

uranium in drinking water are considered low risk.

Are there guidelines for safe levels of uranium in drinking water?

The Australian Drinking Water Guidelines (ADWG), developed by the National Health and Medical Research Council, provide health guideline values for chemical, physical and radiological water quality characteristics and assure the safety of drinking water. A health guideline value is the concentration or measure of a water quality characteristic that, based on present knowledge, does not result in any significant risk to the health of consumers

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over a lifetime of consumption. As the health effects of natural uranium at low levels are more likely to be due to chemical effects and not to radiation, the ADWG guideline value for uranium is based only on its chemical toxicity.

Under the ADWG, a health guideline value of 17 micrograms per litre for uranium has been set to protect public health (Note: one microgram is one millionth of a gram). This is a highly protective value with a very large safety factor built in. The ADWG also includes health "screening" levels for radioactivity in drinking water, from all sources, not just naturally occurring uranium. If these very conservative screening levels are not exceeded, there is no need for further assessment.

What are the current levels of uranium in the Eton drinking water supply?

Recent monitoring has shown that uranium has been found in one of two bores supplying drinking water to the Eton community at slightly above the ADWG health guideline level of 17 micrograms per litre. Bore 2 levels ranged from 6.84 (0.00684mg/L) to 22.65 (0.02265mg/L). This level is still below World Health Organisation (WHO) guidelines of 30 (0.030mg/L) but this bore has now been turned off.



The remaining bore has levels of uranium that are below the ADWG guideline level. The reported values for Bore 1 ranged from 6.98 (0.00698mg/L) to 14.33 (0.01433mg/L). The level of radioactivity has also been measured in the two bores at Eton and both were found to be below the health screening levels in the ADWG.

Is there a health risk from uranium in the drinking water supply at Eton?

Exceeding health-based guidelines does not mean public health is compromised. It is an intervention mechanism to seek further expert advice.

Queensland Health has assessed the risk from the current levels of uranium in the Eton drinking water supply (which comes from Bore 1) and has advised that the current levels are below the highly protective guideline values in the ADWG (covering both chemical toxicity and radioactivity), and thus the drinking water being

supplied is safe to drink and use for all other domestic purposes.

Even though the risk from uranium in the water from Bore 2 is very low, it was precautionary for council to cease using this supply. If water supply issues require the bore with elevated uranium to be turned on again, council will monitor uranium levels on a regular basis to ensure that they remain below the health guideline level. Council is considering future long-term options to ensure an ongoing, safe and sustainable drinking water supply for residents of Eton.

If you have any concerns about your health, contact 13 HEALTH (13 43 25 84), your local doctor or local hospital and advise them of this notice.



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