

HISTORIES OF GUIDELINE DEVELOPMENT FOR THE FOURTH EDITION

12. Chemical fact sheets

12.1 Chemical contaminants in drinking-water

Uranium

History of guideline development

The 1958 and 1963 WHO *International Standards for Drinking-water* did not refer to uranium. The 1971 *International Standards* stated that uranium should be controlled in drinking-water, but that insufficient information was available to enable a tentative limit to be established. In the first edition of the *Guidelines for Drinking-water Quality*, published in 1984, it was concluded that no action was required for uranium. A health-based guideline value for uranium was not derived in the 1993 *Guidelines*, as adequate short- and long-term studies on the chemical toxicity of uranium were not available. Until such information became available, it was recommended that the limits for radiological characteristics of uranium be used. The equivalent for natural uranium, based on these limits, was approximately 0.14 mg/l. In the addendum to the second edition of the *Guidelines*, published in 1998, a health-based guideline value of 0.002 mg/l was established. This guideline value was designated as provisional, because it may be difficult to achieve in areas with high natural uranium levels with the treatment technology available and because of limitations in the key study. It was noted that several human studies were under way that may provide helpful additional data. In the third edition of the *Guidelines*, published in 2004, a provisional guideline value of 0.015 mg/l was established, with the provisional designation based on outstanding uncertainties regarding the toxicology and epidemiology of uranium as well as difficulties concerning its technical achievability in smaller supplies. In the fourth edition of the *Guidelines*, published in 2011, the guideline value was raised to 0.03 mg/l, derived from new epidemiological studies on populations exposed to high uranium concentrations, and designated as provisional on the basis of scientific uncertainties surrounding uranium toxicity.