

summary of
key points of
subto Guide

RADIONUCLIDE CONTENT IN COMMODITIES DS 161

SCOPE

1.1. The scope-defining levels specify the levels of activity concentration in commodities, above which trade can be regulated, and below which trade shall be unrestricted, on the basis of radiation protection considerations, and, by implication, the levels of activity concentration in materials originating from regulated practices that can be cleared from regulatory control. Implicitly, the scope-defining levels for primordial radionuclides will define the naturally occurring radioactive materials that would fall within the scope of the Standards.

OPTIMIZATION

- use fundamental principle of optimization of radiation protection
- radiological controls only be applied where there is a positive net benefit
- involves considerations of amenability of situation to regulatory control and magnitude of radiation risk

PRIMORDIAL RADIONUCLIDES

- Doses to individuals as a consequence of the use of these scope-defining levels are unlikely to approach 1 mSv in a year, excluding the contribution from isotopes of radon and their short-lived decay products.

ARTIFICIAL RADIONUCLIDES

- a relevant criterion for scope-defining levels is that doses to individuals should be less than or on the order of $10\mu\text{Sv}$ in a year, with a modeling considering a low probability for individual doses approaching 1mSv in a year.

FOODSTUFFS AND DRINKING WATER

- For artificial radionuclides, this model, like the models used for calculation of values for other commodities presented in Table I, accounts for possible internal exposure of average consumer up to an annual dose of tens of microsieverts and in extreme cases up to one millisievert. It is considered that on a protracted timescale, and under normal circumstances, only a small fraction of the food being traded, especially internationally, would be expected to originate from areas contaminated with artificial long-lived radionuclides and contain significantly elevated levels of radioactivity, as distinct from artificial radionuclides globally dispersed worldwide.

- Therefore, the scope-defining levels applying to foods containing natural radionuclides were assessed based on consideration of uniform contamination of a food ration and natural variability of radionuclide levels in foods with the requirement to ensure adequate protection of the public.

APPLICATION TO CLEARANCE

A particular implication of the scope-defining levels is that they can be used for clearing materials from practices, i.e., for determining whether regulatory controls should be lifted or removed for materials containing radionuclides of artificial origin. Any material within a practice containing

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radionuclides of either natural or artificial origin below the scope-defining levels should be regarded as suitable for clearance and eventual recycling. However, deliberate dilution in order to meet the scope defining levels should not be permitted without the prior approval of the Regulatory Authority.

Any restrictions taken on materials with radionuclide content below the scope-defining levels, such as action by Customs at borders to prohibit the entry of such materials or by recycling plants to limit their utilization should not be attributed to radiation protection considerations.

APPLICATION TO BORDER MONITORING

The scope-defining levels may provide an input for determining the design requirements for monitoring equipment that might be used at borders or in scrap yards to detect the presence of unregulated radioactive materials.

DEFINITION OF RADIOACTIVE SUBSTANCE

The scope defining levels could be used for defining quantitatively term 'radioactive substance' which, although used in the Standards, is not quantitatively defined.