

**Mining-related radiation exposure of members of the public and of workers:
New Calculation Guide Mining in Germany**

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The new "Calculation Guide Mining" is intended to determine the mining-related radiation exposure of members of the public and of workers. It is applicable for the use, decommissioning, remediation, and reuse of mining facilities and installations as well as for the use, remediation, and reuse of land contaminated as a result of mining facilities and installations.

The "Calculation Guide Mining" describes procedures and parameters to determine effective dose indoors, at underground workplaces, and outdoors, as well as exposures caused by consumption of breast milk and locally produced foodstuff. The following exposure pathways are considered: external exposure due to gamma-radiation from the soil, exposure due to inhalation of dust, exposure due to inhalation of radon and its short-lived decay products, exposure from ingestion of breast milk and locally produced foodstuff (drinking water, fish, milk and milk products, meat and meat products, leafy vegetables, other vegetable products), and exposure due to soil ingestion.

In order to account for the background levels of environmental radionuclides, the "Calculation Guide Mining" includes levels of natural background for all relevant environmental media.

The new "Calculation Guide Mining" is the result of a revision and summarization of the "Calculation Guide for the Determination of Radiation Exposure due to Mining-caused Environmental Radioactivity" and the "Calculation Guide for the Determination of Radiation Exposure due to Inhalation of Radon and its Short-lived Decay Products as a Result of Mining-caused Environmental Radioactivity", prepared in the mid-nineties by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) in cooperation with the Federal Office for Radiation Protection (BfS).

The experience gained during the last ten years of application of the Calculation Guides, as well as more recent research results necessitated a revision. This was done with particular consideration of indications made by the above Federal Laender and the Wismut GmbH as well as by experts. The summarized and modified Calculation Guide Mining has been discussed at length in the Commission on Radiological Protection (SSK). The Calculation Guide Mining is confined to specifying procedures to calculate radiation exposure due to mining. It does not contain material for radiation protection requirements such as regulations concerning remediation objectives or information as to the prerequisites for the justification of remediation operations nor transport models, e.g. for outdoor radon or the water pathway.

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