

Note: This is a translation of the document entitled "27. Sitzung der Entsorgungskommission am 21. Juni 2012 Geplante Verabschiedung der "Leitlinien zur Einordnung von Entwicklungen in Wahrscheinlichkeitsklassen" Abweichendes Votum gemäß § 16 (3) der Satzung der Entsorgungskommission (ESK) vom 17. Juli 2008".

In case of discrepancies between the English translation and the German original, the original shall prevail.

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7 June 2012

27th meeting of the Nuclear Waste Management Commission on 21 June 2012

Planned approval of the

"Leitlinien zur Einordnung von Entwicklungen in Wahrscheinlichkeitsklassen"

Dissenting opinion

**according to § 16 (3) of the Statutes of the Nuclear Waste Management Commission
(ESK) of 17 July 2008**

The draft "Guidelines for the classification of evolutions according to probability categories" prepared by the Committee on Final Disposal (EL) of the ESK and approved at its 26th meeting on 31.05.2012 with two dissenting votes is scheduled for discussion and approval at the 27th meeting of the ESK on 21.06.2012.

Since I will not be able to attend the ESK meeting on 21st June, I hereby give notice that I do – as already done in the EL Committee (together with Mr Kreuzsch) – not approve the submitted draft.

Explanatory statement

The "Guidelines for the classification of evolutions according to probability categories" serve to specify the allocation of potential evolutions, i. e. scenarios derived from them for a repository system taken into consideration, to three probability classes (probable, less probable, improbable), as required in the Safety Requirements Governing the Final Disposal of Heat-Generating Radioactive Waste, as at 30 September 2010 [1]. In the Safety Requirements, the boundaries between the probability categories are defined quantitatively. For the assessment of the radiological consequences associated with probable scenarios, a radiological assessment criterion (effective annual dose) applies which is lower by a factor of 10 than applied for the assessment of consequences of less probable scenarios. For improbable scenarios, no radiological assessment criterion has been established.

At its 15th meeting on 09.03.2011, the Committee EL set up an ad hoc working group to prepare draft guidelines in which, initially, the author of this vote was also a member. The working group intensively dealt with the basic methodological problems of early assignment of scenarios to quantitatively defined probability categories and the different approaches in dealing with the scenarios assigned this way (including the application of different radiological assessment criteria). The problems are mainly due to the inevitable uncertainties associated with the specification of probabilities for scenarios and their assignment to probability categories that are quantitatively defined and have different radiological assessment criteria. The uncertainties of category assignment have an influence on the result of the radiological assessment. Since the specification of quantified probabilities for scenarios is generally not possible, the assignment requires normative estimations that may not only involve adverse consequences for the assessment reliability, but also for the transparency of the decision process and the credibility of its result.

Based on intensive discussions, the working group concluded that the methodological problems and their adverse consequences for the reliability of the radiological assessment of scenarios and its acceptance by experts and the general public cannot be sufficiently reduced or even eliminated within the framework of the procedure specified in the safety requirements. It therefore examined whether the problems can be reduced with a procedure modified from the specifications of the safety requirements and outlined a possible alternative to the procedure specified in the safety requirements. The concerns about the approach of the safety requirements and the approach regarding a different procedure are described in a discussion paper of the EL Committee of August 2011 [2]. The Committee did not agree to pursue this approach, which caused Mr. Kreuzsch and me to resign from the working group.

The draft guideline developed subsequently and scheduled for approval by the ESK on 21.06.2012 includes a systematic approach for the assignment of scenarios to probability categories. However, the methodological problems associated with the normative classification of scenarios according to quantitatively defined probability categories and the formalised application of different radiological assessment criteria to scenarios with different probabilities will not be avoided.

The approach presented in the discussion paper [2] would do without a priori assignment of scenarios to quantitatively defined probability categories and lead to a more detailed consideration of scenarios to be regarded as critical.

In particular, scenarios whose consequences result in exceeding the more restrictive radiological assessment criterion would be "analysed" and subjected to a systematic weighing process for dealing with the scenario (where probabilities will also be included).

Detlef Appel

[1] BMU: Sicherheitsanforderungen an die Endlagerung wärmeentwickelnder radioaktiver Abfälle. Stand 30. September 2010.

BMU: Safety Requirements Governing the Final Disposal of Heat-Generating Radioactive Waste. As at 30 September 2010

[2] Ad-hoc-AG "Leitlinie zur Szenarienklassifikation": Diskussionspapier für die 17. Sitzung des Endlagerausschusses der Entsorgungskommission - "Ansätze zur Beurteilung von Szenarien ohne deren A-priori-Zuordnung zu Wahrscheinlichkeitsklassen", Stand 16.8.2011.

Ad hoc working group "Guideline on scenario classification": discussion paper for the 17th meeting of the Committee on Final Disposal of the Nuclear Waste Management Commission - "Approaches to assess scenarios without their a priori assignment to probabilities categories", as at 16.8.2011.