



# Regulation of Natural Radioactivity in International Transport and Trade

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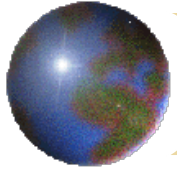


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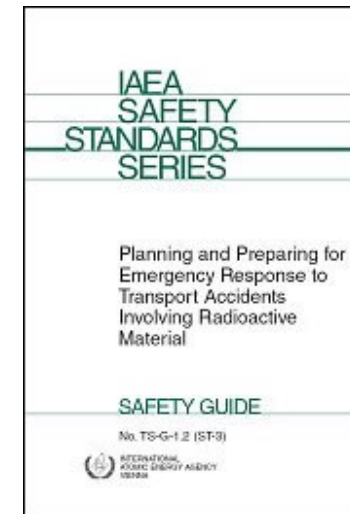
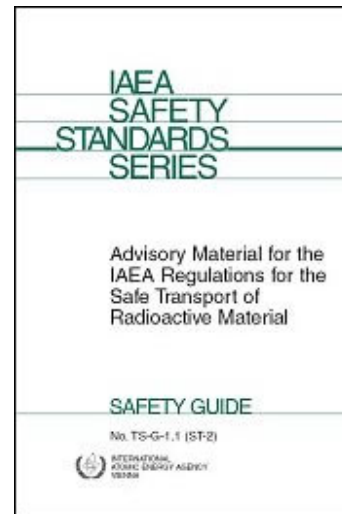
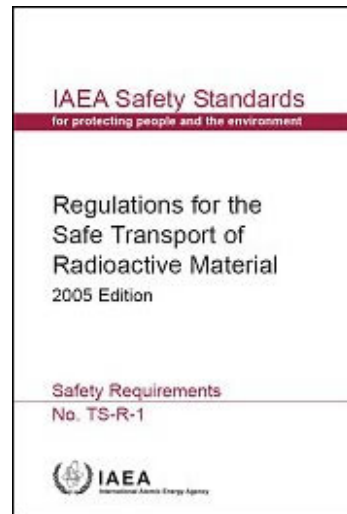
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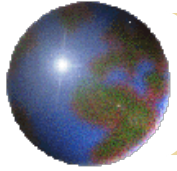


## Guideline for the transport of mineral concentrates classified as Naturally Occurring Radioactive Materials (NORMs)

Control of radioactive material during transport:

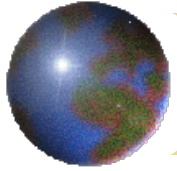


- ✦ Somewhat complex for a typical NORM producer/transporter/user
- ✦ Simplified guideline for both industry and appropriate authorities needed
- ✦ Developed and available on <http://eneabba.net/radlinks/tenorm>



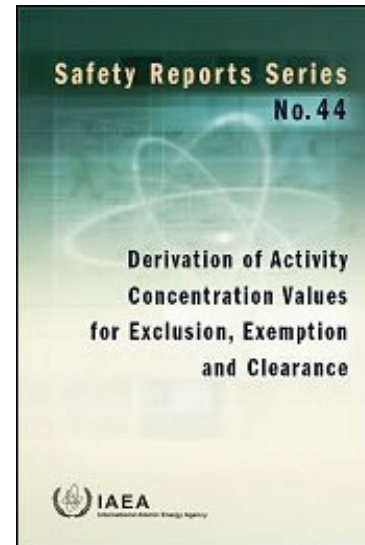
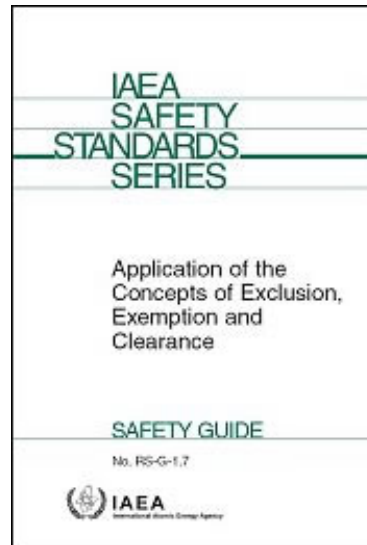
## **Guideline for the transport of mineral concentrates classified as Naturally Occurring Radioactive Materials (NORMs)**

- ✦ Determination of applicability of Transport Regulations to the particular NORM;
- ✦ Determination of activity concentration and applicability of exemption:
  - a) For a material that has not been a subject of chemical and/or thermal processing,
  - b) For a material that has been a subject of chemical and/or thermal processing:
    - ♦ case when complete analysis of NORM was carried out,
    - ♦ case when only partial data is available;
- ✦ Classification of the material: transport index and category;
- ✦ Considerations for 'excepted package' arrangements;
- ✦ Signage requirements;
- ✦ Transport of NORM under an 'exclusive use' arrangement;
- ✦ Blending of different materials in one conveyance for transport;
- ✦ Surface contamination issue: definitions and practical considerations.



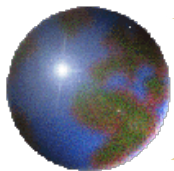
## International trade in commodities containing NORM

- ✦ Standardization of exemption levels for NORMs is necessary
- ✦ Different methods of specific activity calculations
- ✦ Different limits (NORM released from regulatory control during processing will still need control during transport)
- ✦ EU Directive 96/29 Title VII – “significant increase in the exposure...”
- ✦ May be different within one country (Federal Law vs. State Law)
- ✦ Possible answer:



Graded approach:

- Is “up to 10 times” too high?
- Additional guidance needed



## Control of NORM at International borders



### Of a particular importance:

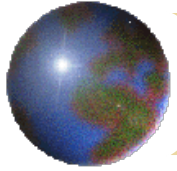
#### TECDOC-1312 (2002)

- Process of detection
- Selection of instruments
- Investigation levels
- Alarms settings and verification
- Localization of radioactive material
- Verification of presence and type of radioactive material

#### Technical Reference Manual (2006)

- Technical data for border monitoring equipment
- Test procedures
- Practical examples

→ A problem with data in the reference table of TECDOC-1312, an updated and expanded table is available



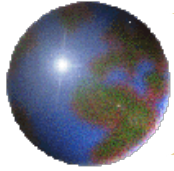
## **Practical suggestions**

### **Training and education (all stakeholders):**

- Appropriate regulatory authorities
- Industries producing and using NORMs
- Shipping/transport industry

### **Potentially affected industries:**

- Contact with an appropriate regulatory authority in an 'importing' country:
  - (a) Via the company importing the material;
  - (b) Directly, using a qualified expert;
  - (c) Via the appropriate authority in an 'exporting country'.
- Improvements in transport documentation:
  - (a) Updates for the Material Safety Data Sheets (MSDS);
  - (b) Additional data for 'excepted packages'.
- Sampling procedures:
  - (a) Different requirements: producer – consumer – appropriate authority;
  - (b) Independent analysis.



## Practical suggestions

### Appropriate authorities:

- ‘Graded approach’ :

The following should be considered when NORM is imported into a country:

- Possible radiation exposure of workers and general public during the processing of NORM;
- Potential contamination of the environment by residues from this processing.

Reliance on activity concentrations may be misleading.

- Co-ordination of regulatory strategies and their implementation

- Comprehensive guidelines to be provided:

- (a) Suggestions from three IAEA TECDOCs and Reference Manual included;
- (b) Target audience – customs officers and border police (must be simple);
- (c) Example – People’s Republic of China SN/T 1537-2005 Standard.