



XA0300677

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Identification of work activities in the Netherlands

*Technical Committee meeting on the
Assessment of Occupational Protection Conditions
in Workplaces with High Levels of Exposure
to Natural Radiation
IAEA, Vienna, 7- 11 May 2001*

NRG Radiation & Environment

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Introduction

The implementation of the EURATOM Basic Safety Standards forces Member States to identify work activities which may be of concern

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Introduction

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- **First survey carried out in 1998/1999 on behalf of the Ministry of Social Affairs**
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- **Update is being performed at the moment**

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Introduction

Structure of the surveys:

- **Literature search for occupational exposure to NORM**
- **Inventorisation of work activities in the Netherlands**
- **Evaluation of doses by scenario calculations for normal and unlikely conditions**

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Introduction

Exposure scenarios based on specific industrial information on:

- **Nuclide inventory and specific activity**
- **Dust concentrations**
- **Exposure conditions (for normal and unlikely conditions)**
 - * breath rate
 - * duration
 - *
 - * distance
 - * size of sources

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Introduction

Occupational exposure

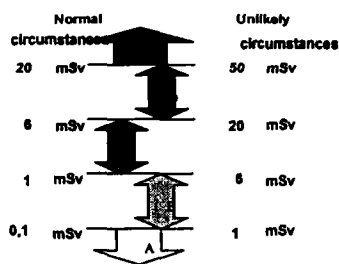
-
- Scenarios specific for each type of industry
- Pathways: external irradiation and inhalation
- Ingestion accounted in a general way
- No skin doses

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- Introduction
- Classification scheme



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Introduction

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Basic criteria for identification of work activities of concern

Dose criterion

> 0.1 mSv/y effective dose

> 1 mSv/y effective dose

Working conditions

Normal

Unlikely

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Results

• Category A:

- * Thermal phosphorus production (trans-shipment of ore; storage of ore; slag beds)
- * Phosphoric acid production (trans-shipment; storage)
- * Fertiliser production (trans-shipment; storage at user; strewing by user.)
- * Oil and gas production (storage of sludge and tubings)
- * Electricity production (dust in kettle house; trans-shipment and storage of fly-ash)

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Results

- **Category A: (cont.)**
 - * Fly-ash industry (dust at processing; storage)
 - * Cement production (storage; brick production)
 - * Mineral sands (trans-shipment zircon sand)
 - * Welding rod production (storage; filling of welding rods)
 - * Steel production (blast-furnace gas dust)
 - * Cerium oxide polisher (polishing)
 - * Catalyst production (storage; Ra bearing scales)
 - * TiO_2 pigment production (storage; dust)

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Results

- **Category A: (cont.)**
 - * Use of phosphor slag (transport; asphalt and concrete production)
 - * Use of phosphor gypsum (storage; plaster workers)
 - * Market gardening (Rn in greenhouses)
 - * Foundries (storage zircon sand)
 - * Glass furnaces (maintenance)
 - * Coarse ceramics (maintenance chimney)
 - * Fine ceramic industry (storage ZrO_2)
 - * Thermal barrier coating (storage ZrO_2)

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Results

-
- **Category B:**
 - * Thermal phosphor production (sintering plant; phosphor production plant)
 - * Use of phosphor slag (road construction)
 - * Phosphoric acid production (maintenance)
 - * Fertiliser production (storage of ore and fertiliser; maintenance)

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Results

-
- **Category B (cont.):**
 - * Oil and gas production (maintenance)
 - * Electricity production (maintenance)
 - * Cement production (maintenance brick furnace)
 - * Mineral sands industry (storage zircon sands and milled products; milling; bag filling)
 - * Foundries (mixing of milled sands)

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Results

-
- **Category B (cont.):**
 - * Glass furnaces (exposure at work)
 - * Fine ceramic industry (mixing of ZrO₂)
 - * TIG welding (storage rods; grinding of welding rods)
 - * Steel production (sintering plant)
 - * Zinc production (cobalt cake)
 - * Catalyst production (maintenance)
 - *
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Results

-
- **Category B: (cont.)**
 - * Metal recycling (cutting E&P components; exposure to Ra bearing scales)
 - * Mineral wool (exposure at work; decommissioning)
 - * Aircraft operation (scheduled flights below 8 km altitude)
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Results

- **Category C:**
 - * Thermal phosphor production (decontamination)
 - * Oil and gas production (overhauling components)
 - * TIG welding (welding)
 - * Aircraft operation (scheduled flights above 8 km altitude)

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Example

- * **Mineral wool decommissioning**

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