

Examples of Application of Graded Approach in Belgium

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Examples of Application of Graded Approach in Belgium

- NORM
 - Dose
 - Waste Management
 - Site Remediation
- Transport
 - Inspection

NORM – Belgian Regulation (1)

- Directive 2013/59/EURATOM
 - Transposed into royal decree of July 21, 2001
 - Art. 4 lists “work activities involving natural radiation sources”
 - Art. 9 industries are submitted to declaration
 - 86 declaration, mainly ground water treatment, zircon & phosphate industries
- Objective of notification
 - Dose impact to workers & public < 1mSv/y
 - If not, corrective measures or licensing

NORM – Belgian Regulation (2)

- General Clearance/Exemption level based on EC “Radiation Protection 122 II”
 - Derived from dose criterion of 0,3 mSv/y
 - Leads to activity concentration depending on
 - Isotope
 - Application (mono-landfill or other)
 - Ranges from 0,5 to 10 Bq/g (0,1 for mono-landfill)
- If levels are below RP 122 II → No additional constraints (except mono-landfill)
- If levels are above RP 122 II → Follow-Up
 - Notification to FANC
 - Specific Acceptance Criteria

Acceptance criteria: reference values

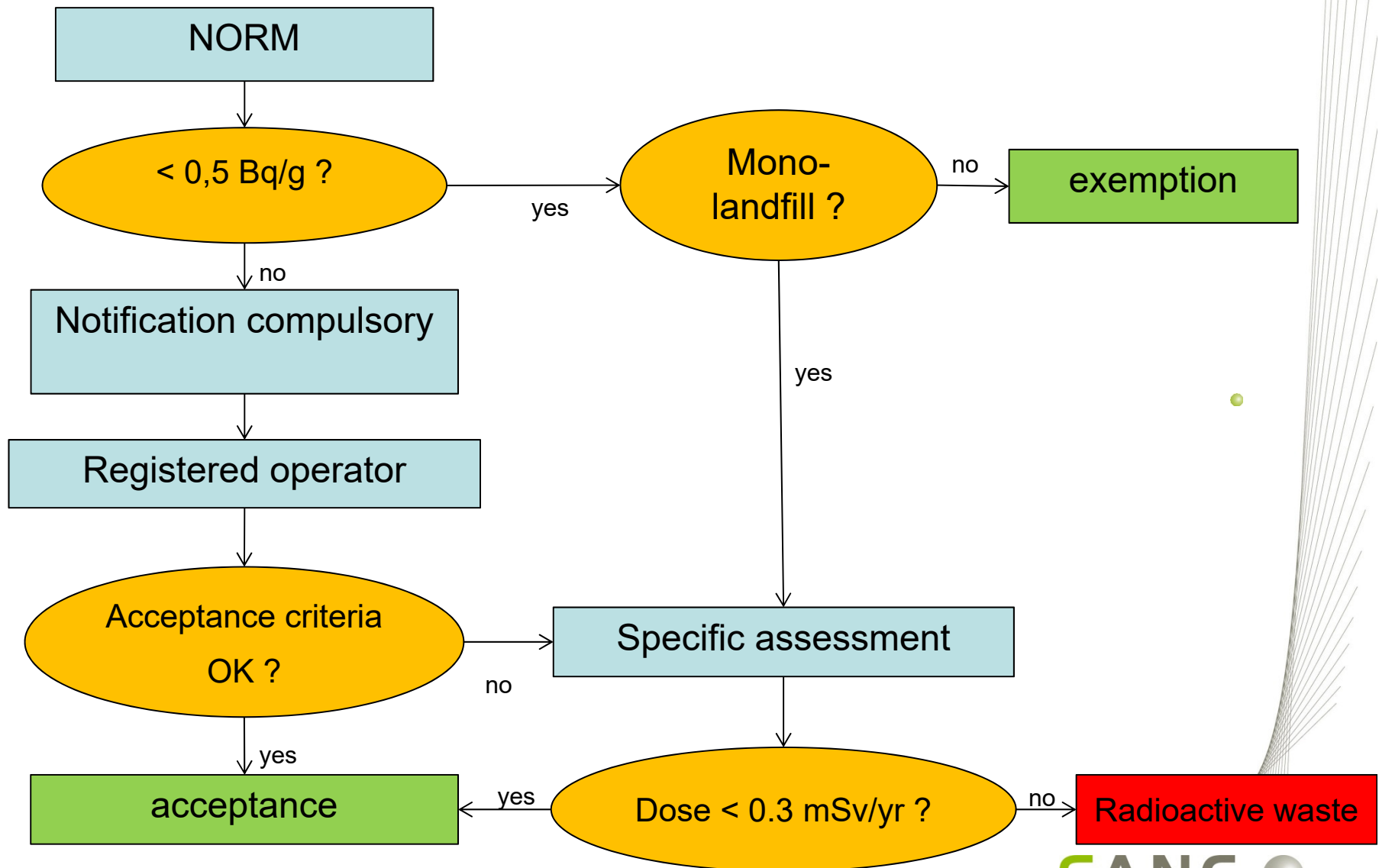
Tye of treatment	Activity concentration	
	Input (single batch of residues)	Output (after processing)
Landfill for hazardous waste	$C_{\text{exemption}}$	RP 122 II
	C_{max}	50 Bq/g
Landfill for non hazardous or inert waste	$C_{\text{exemption}}$	RP 122 II
	C_{max}	10 Bq/g
Mono-landfill		< 0.1 Bq/g: no restrictions
		> 0.1 Bq/g: site-specific approach

Acceptance criteria: reference values

Treatment	Activity concentration		
	Input (single batch of residues)		Output (after residue processing)
(Co-)incineration	C _{exemption}	RP 122 II	- Activity index (building) - RP 122 II (road construction)
	C _{max}	10 Bq/g	
Building materials	C _{exemption}	RP 122 II	- Activity index (buildings) - RP 122 II (road construction)
	C _{max}	10 Bq/g	
Other uses	Case by case (dose assessment < 0.3 mSv/y)		

Summary

10 Authorized sites



Lasting Exposure Situation

- Dose Criterion
 - dose < 0.3 mSv: never intervention
 - 0.3 < Dose < 1 mSv: intervention rarely justified
 - 1 < dose < 3 mSv: intervention generally justified
 - Dose > 3 mSv: intervention always justified
- Protection Measures
 - Restriction on the use of the site
 - Administrative follow-up
 - Monitoring
 - Full scale remediation

Application of Graded Approach for Inspection Programme of Transport Activities

- Belgium is centrally localized in Western Europe
 - 400.000 packages/year
 - 40.000 shipments/year
- Specific approach needed for inspections
- Introduction of
 - Preventive approach, rather than repressive approach
 - Inspections complemented with Compliance Audits
 - Introduction of graded approach tool to determine inspection frequency of licensed carriers.

Graded Approach for Transport Inspections

- Take into account
 - Transport of nuclear materials
 - Holding of one or several general transport licences
 - Holding of one or several special transport licences
 - Quantity and type of packages being transported
 - Nature and scope of transport operations (percentage and frequency of radioactive material transport operations)
 - Previous incidents and accidents
 - Results and observations from previous inspections
 - Nationality and size of the company, complexity and diversity of the activities proposed by the carrier
 - Means of transport (number and type) used by the carrier
- Grouped into 11 criteria
 - Score is provided for each criterion

Graded Approach for Transport Inspections (2)

- Depending on sum of the scores, frequency of inspections is determined:
 - 3 inspections / year
 - 2 inspections / year
 - 1 inspection / year
 - 1 inspection / 3 years
 - 1 inspection / 5 years
- Presented at different fora
 - Technical Meetings (ASN, ENSI, ...)
 - Good Practice IRRS 2013
 - ...

Q&A

The difficult we do immediately

The impossible might take a little bit longer