The International Classification of Radioactive Waste

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IAEA
International Atomic Energy Agency

Objective of the IAEA Classification

- Provide a general system of classification accommodating all waste types and disposal solutions
- Assist development & implementation of national waste strategies consistent with Joint Convention
- Facilitate communication and information exchange
- Identify boundaries & provide quantitative guidance
- Does not prescribe specific disposal solution for certain waste types – specific safety assessment for each disposal facility required

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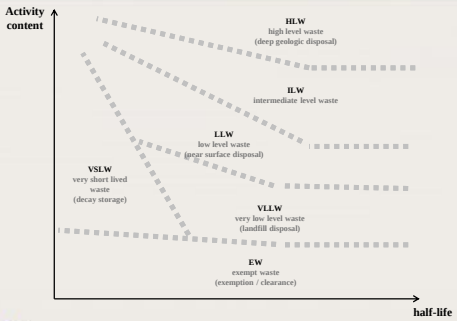
- Long term safety as a basis
- Retain as much as possible from previous scheme
- No consideration for hazardous constituents that do not affect radiation safety

Waste Classification Scheme

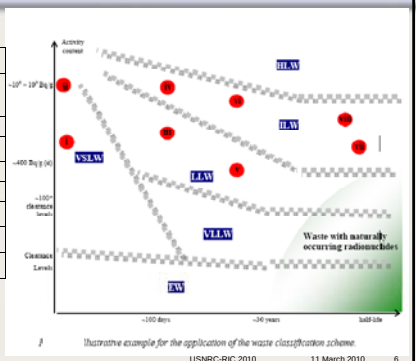


Classes definition

- **Exempt waste**
  - Criteria from BSS – quantities in RS-G-1.7
- **Very low level waste**
  - Up to 100x clearance levels
- **Very short lived waste**
  - Less than 100 days half life
- **Low level waste**
  - Less than 30m depth disposal
  - Institutional control for 200 - 300 years
  - Less than 400 Bq.g^{-1} long lived waste
- **Intermediated level waste**
  - need a greater degree of containment and isolation from the biosphere than provided by near surface disposal
  - Disposal deeper than 30 – 50 m (typically a few hundred meters)
- **High level waste**
  - Heat generation significant
  - Activities around 5 x 104 to 5 x 105 TBq.m^{3}

Application to DSRS and NORM

Ref	Half-Life	Activity	Example
i	<100d	100 MBq	Y-90 Au-198
ii		5 TBq	Ir-192
iii	< 15 y	< 10 MBq	Co-60, H-3, Kr-85
iv		< 100TBq	Co-60
v	< 30 y	<1 MBq	Cs-137
vi		~1 PBq	Cs-137 Sr-90
vii	> 30 y	< 40 MBq	Pu, Am, Ra
viii		< 10 GBq	Am-241 Ra-226



Illustrative example for the application of the waste classification scheme.

US classification systems

- Commonalities with IAEA classification
  - Based on long term safety: disposal option, WAC
  - Account for inadvertent human intrusion
  - Mainly qualitative with safety assessment as criteria for decision
- Differences
  - NORM from U production as a separate class
  - No ILW but C, GTCC and TRU