

Joint Research Centre (JRC) – Institute for Transuranium Elements



- 1 Compliance of the Key Topics with the strategic needs arising from the Vision 2025. How this can be carried forward into **deployment** and true collaborative RD&D
- 2 Added **value** of the SRA to the IGD-TP **participants**
- 3 How the **participants** can **contribute** to the deployment

ITU - Institute for Transuranium Elements *Karlsruhe – Germany*

<http://itu.jrc.ec.europa.eu/>

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The Joint Research Centre (JRC) is a Directorate General of the European Commission.

The Institute for Transuranium Elements (JRC-ITU) in Karlsruhe, Germany, center-point within JRC for work with **highly radioactive material**.

Activities related to:

- (i) nuclear fuel cycle from fuel fabrication to post-irradiation examination in hot cell to storage and **disposal studies**,
- (ii) nuclear safeguards, security and forensics.

About 300 staff located in Karlsruhe

1 Direct Actions: Own program **Continuity** and for the EURATOM signatory states

2 Indirect Actions: The EURATOM RD&D program

2 Added value of the SRA to the IGD-TP participants

3 Co-operations based on requests from member States, industry

1. Compliance of the Key Topics with the strategic needs arising from the Vision 2025. How this can be carried forward into **deployment** and true collaborative RD&D

Key Topics

- Safety case,
- **Waste forms** and their behaviour,
- Technical feasibility and long-term performance of repository components,
- Development strategy of the repository,
- Operational safety,
- Monitoring, and
- Governance and Stakeholder involvement.

Spent Fuel:

- High burn-up, MOX and next generation of fuel
- Revisiting the stability of spent fuel with extended storage times (R&R):

Not the centre-point of the SRA / The Vision

Accessibility to Facilities and Competence requires **continuity**

Direct actions, providing the Member States with competence and infrastructure continuity

and we welcome indirect actions, co-operations,

Instant Release (UO₂ fuel):

Detailed understanding of actual accessibility and chemical form of “Instant/Fast Release Fraction”:

Effective contribution for lowering predicted peak-dose

- Scarce data,
- Oxidized fuel samples where the accessibility of inter-granular surfaces and pore space is probably too high,
- Lack in data with high burn-up,
- Difficult to find accessible spent fuel where
 - (i) the fuel is intact,
 - (ii) the operational history is well known, and
 - (iii) data are accessible for publication

- **In the SRA: 2018**
- **Already now: Proposal under preparation for EURATOM 2011 call**
- **Would benefit from additional follow-up extended action on RN chemical form**

Starting 2018:

- **3 + 3 years -> 2024**
- **Continuity: Competence and facilities**

"Start now"

Monitoring

Different reasons for monitoring:

- **Performance verification**
- **Compliance verification**
- **Providing trust**
- **Because it is possible**
- **....**

Is it foreseen to delineate and structure the different needs as a basis for communication and future activities?