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T4.5 Optimization of metallic waste characterization and procedures for waste minimization and recycling

(Task leaders NCSRD, DMT) (M1-M48)

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Participants

T4.5.1 Classification of the waste streams of the different types of reactors (**FTMC**, DMT, NCSRD) (M1-M24)

T4.5.2 Characterization and sorting of metallic waste in different management routes (**NCSRD**, FTMC, DMT, ENRESA, NUCLECO) (M1-M48)

T4.5.3 Development of new radiochemical procedures for DTM radionuclides (**IMT**, VTT, CTU) (M12-M48)

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T4.5.1 Classification of the waste streams of the different types of reactors (FTMC, DMT, NCSRD)

Classification of the reactor metals regarding the level of activation: highly, intermediate and low activation metallic constructions as well as non-activated metals

- Classification of reactors' metallic components using modelling results (different reactors modelling overview and information from technical studies - RBMK, PWR, etc.) - **pre- dismantling**
- Classification of metallic waste using experimental measurements results (Non destructive and destructive measurement techniques) - **characterization at the final stage of decommissioning planning as well as during dismantling**
- Determination of Nuclide Vectors (NV) for each metallic waste stream - **optimized characterization**

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T4.5.2 Characterization & sorting of metallic waste in different management routes (NCSRD, FTMC, DMT, ENRESA, NUCLECO)

Development of **non-destructive techniques** (2 PhD dissertations) **and suggestion for sampling procedure to optimize** characterization of metallic waste (activation and surface contamination).

Non-destructive techniques:

- For validation of neutron calculations (measurement in the air or under water)
- To decide whether decontamination makes sense as well as to select the most efficient decontamination processes (measurement even in high background areas, possible use of the gamma cameras results and density distribution)

Aim: to have benefit from clearance (restricted or unrestricted) or declassification of waste by decontamination

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T4.5.3 Development of new radiochemical procedures for DTM radionuclides (IMT, VTT, CTU)

- **Development of robust and validated radiochemical procedures** for DTM radionuclides
- **Complementary** approach to existing methods (eg. scaling factor)
- **Development** of a sensitive and quantitative method to isolate and measure DTM radionuclides
- Refinement of the radiological inventory in terms of activity level
- Importance significant for decontamination/clearance or decontamination/declassification of metallic waste

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Thank you!