



PRESENTATION OF ROUTES WP

Waste Management routes in Europe from cradle to grave

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ROUTES KEY FIGURES

2019 2024

ROUTES is one of the 13 WPs of the JOINT PROJECT EURAD https://www.ejp-eurad.eu/

ROUTES is a strategic study

35 Organisations (WMO, TSO, RE)

21 Countries

Total budget: 1.7 M€ EC contribution: 1.2 M€



ROUTES GENERAL OBJECTIVES

ROUTES GOALS

- sharing experience and knowledge on waste management routes between interested organisations
- from different countries, with programmes at different stages of development, with different amounts and types of radioactive waste to manage
- Identifying safety-relevant issues and their R&D needs associated with the waste management routes (cradle to grave), including the management routes of legacy and historical waste, considering interdependencies between routes.
- comparing the different approaches to characterisation, treatment and conditioning and to longterm waste management routes, and **identify opportunities for collaboration**



ROUTES: TASKS BREAKDOWN AND METHODOLOGY

WHAT Characterisation (toxic legacy waste) Waste acceptance criteria perspective Challenging waste (reactive metals, toxic, organic, sludges...) Shared Interaction solutions and with Civil facilities Society

HOW

Participants Inputs

Lessons Learnt
« What is working and what is not... »
Case Studies

Past and on-going EC Funded Projects in RWM



EC, IAEA and NEA Reports and Activities



EXAMPLES OF TOPICS ADRESSED IN ROUTES

- Inventory of challenging waste
- Sharing experience on waste management with/without WAC available
 - Challenging waste considered as challenging since no WAC exist
 - How challenging waste streams are managed in MS in the absence of WAC or very preliminary WAC?



CASE STUDIES CENTRAL THEME = THE DILEMMA OF (FINAL) CONDITIONING

Waste Conditioning Operator

Difficulties in defining an efficient management route with preliminary WAC

How to design the final waste conditioning?

Disposal Facility Operator

Difficult to fix the WAC too early in the design of the disposal before completing all the safety options

EARLY FINAL CONDITIONING

- Overall cost savings (once-through, passively safe product)
- Provides a disposable product
- Encourages standardisation
- Encourages open dialogue and trust between the Operators, the Safety Authority, the Regulator and other stakeholders
- Acceptability of 'final' packages for disposal is uncertain, especially if no existing WAC
- Early (up-front) costs

DELAYED FINAL CONDITIONING

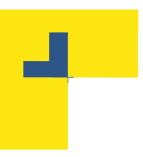
- Leaves options open (emerging technology)
- Reduces initial investments
- Final disposal acceptance less uncertain (WAC are more mature)
- Defers hazard reduction → future burden
- Requires future retrieval and re-packaging with potential evolutions / degradation of the initial conditioning solution
- May produce additional secondary waste

When to implement (final) conditioning in the absence of an established disposal route?



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 - How are challenging waste streams managed in MS in the absence of WAC or very preliminary WAC ?
- How may waste management solutions available in Large inventory MS be tailored for Small Inventory ones?
- Which are the mechanisms and R&D needs for sharing solutions? Would mobile facilities help SIMS?
- Which are the Institutional mechanisms in place to ensure public participation and stakeholder representation in the nuclear waste management process?



THANK YOU FOR YOUR ATTENTION!

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