

The European R&D project INSIDER Acting on the upstream stages

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The European R&D project INSIDER: Acting on the upstream stages

D. Roudil [1*], P. Peerani [2], S. Boden [3], B. Russell [4], M. Herranz [5], M. Crozet [1], L. Aldave de la Heras [2], M. Bazin-Retours [6]

[1] CEA Nuclear Energy division, Research Department on Mining and fuel Recycling Processes, BP 17171 F-30207 Bagnols sur cèze, France

[2] European Commission Joint Research Centre, Rue de la Loi 200, Brussels 1049, Belgium….

[3] SCK-CEN, Belgian Nuclear Research Centre, Boeretang 200, B-2400 Mol, Belgium

[4] NPL National Physical Laboratory, Hampton Road,Teddington, Middlesex, TW11 0LW

[5] UPV/EHU, Univ. of the Basque Country, EI Bilbao. Pza. Ing. Torres Quevedo 1, 48013 Bilbao, Spain Nuclear

[6] LGI-Consulting, 6 Cité de l'ameublement- 75011 Paris, France

[*] Main Author, danielle.roudil@cea.fr

The main objective of the European project INSIDER (Improved Nuclear Site Characterization for Waste minimization in Decommissioning under Constrained Environment) is to improve the management of waste coming from nuclear sites under D&D operations, in particular to direct D&D operations, so that the production of waste is optimized on the basis of criteria such as minimization of generated volumes, limitation of over-categorized waste, generated waste and effluents as engaged doses on sites during the D&D operations.
INSIDER is a 4 years project launched on June 2017. It is coordinated by CETAMA (CEA Nuclear Energy Division) and includes 18 European partners from 10 member states.

The radiological characterization of a facility prior to performing any D&D and remediation operations is a crucial step in the definition of a viable decommissioning scenario. This scenario must be robust and optimized not only with regards to technical issues, produced waste amount and workers dose, but also with regards to costs, deadlines and safety. INSIDER contributes to building confidence that the nuclear community is fit for taking responsibility for retiring a range of facilities and sites without imposing undue economic, social or radiological burdens.
Today, the reconstitution of a 3D vision of a facility or components is partly based on off-site laboratory analyses, leading to technical and economic difficulties in the realization of representative samples. INSIDER aims at developing and qualify integrated approaches to enhance and support characterization methodologies.
The heart of the technical innovative part of the project is to improve the sampling strategy taking into account different types of measurement data, with different but known levels of accuracy. In-situ analysis techniques are of paramount importance for initial cartography. In constrained environment they must be complemented by more detailed off–site measurements. Realistic knowledge of their performance is essential, without systematic optimization.

The INSIDER project addresses 3 use cases: a fuel cycle facility, a nuclear power plant and a post accidental remediation. Each one is representative for different kind of constraints and analytical challenges. The project-integrated approach will be tested and validated by applying the methodologies on three full-scale D&D sites offered by JRC ISPRA, SCK-CEN and CEA, representative of the use cases.
A benchmarking supplemented by interlaboratory comparisons (ILC) on synthetic reference samples produced within the project will structure the validation and refinement of the INSIDER methodology.

The practical project implementation includes documenting, testing, verifying and assessing characterisation methodologies for the selected test cases. Thereby, a key contributor is effective knowledge sharing within the scientific community.

Final assessment of the outcome will strengthen the recommendations and guidance, and promote and share European expertise through guides and pre-normative texts.

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