

**Training Course**  
**On**  
**Safety requirements for Near Surface Disposal**  
**Facility and performance assessment**

**Pisa - September 11-15, 2023**

*GATE Center – Largo Padre Renzo Spadoni, 2*



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**Course Objective**

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The training course will introduce the conception of a Near Surface Disposal Facility, its engineered barriers, safety aspects and the content of safety analysis to be performed for the different steps of the licensing process up to the closure of the facility.

The basic safety requirements for the protection of human health and the technical requirements for waste acceptance and for siting, design, construction, operation and closure of the repository and the post-closure phase will be presented and discussed .

The course includes a familiarization of the participants with the methodology to perform the long term safety assessment and application of simulation software (GoldSim) related to release and subsequent transport phenomena of radionuclides (RN) quantifying potential radiological impact on human health in the post closure phase.

Case studies of release of radioactivity from the disposal, migration of RN in non-saturated and saturated zone around the disposal and estimation of radiological consequences for public will be presented and discussed.



## Course Daily Program *(draft)*

Monday	
9.00 – 12.30	Welcome & Organizational aspects
	ITER-Consult & Course objective -
	Brief introduction on origin and types of Radioactive Waste
	Near surface disposal facility (NSDF) conception & safety requirements
	Licensing process and phases for NSDF
12.30 – 13.30	Lunch
13.30 – 17.30	Waste Acceptance Criteria for NSDF
	Content of safety analysis (SAR) at different phases of licensing process
	Regulatory review of SAR

Tuesday	
9.00 – 12.30	Long term safety assessment of a NSDF after closure (Performance Assessment)
	Methodology for “Performance Assessment” of NSDF
	Modelling, computational needs and available codes
12.30 – 13.30	Lunch
13.30 – 17.30	GoldSim features and capabilities
	Application of GoldSim for “Performance Assessment” (Base Case)

Wednesday	
9.00 – 12.30	GoldSim Practical application Case Study 1 (release of radionuclides (RN))
	Discussion
12.30 – 13.30	Lunch
13.30 – 17.30	GoldSim practical application : Case Study 2 (transport of RN in unsaturated zone)
	Discussion

Thursday	
9.00 – 12.30	GoldSim practical application: Case Study 3 (transport of RN in saturated zone) - N. Zeleznik , R. Remetti, A. Pasculli
	Discussion
12.30 – 13.30	Lunch
13.30 – 17.30	GoldSim practical application: Case Study 4 (conversion of RN concentration in effective dose to public)
	Discussion

Friday	
9.00 – 12.30	GoldSim practical application Case Study 5 (integration of previous cases and key sensitivity aspects)
	Discussion
12.30 – 13.30	lunch
13.30 – 17.30	Course summary
	Final discussion
	Questionnaire
	Training minutes