

Education and training is your organisation's passport to the future, for tomorrow belongs to those who prepare today!

GTC-NTS Fundamentals of Geological Disposal 25-29th June, 2018

This five-day course is presented as a collaboration between the GTC (Grimset Training Centre) and NTS (Nuclear Training Solutions). The course provides a basic background in deep geological disposal for project managers and scientists, implementing and regulatory agencies, geosciences, environmental and engineering companies involved with site investigation, safety assessment, repository design and the construction of underground facilities. The course will take place in the GTC, part of Nagra's Grimset Test Site (GTS), which is located in the Swiss Alps. It was established in 1984 as a centre for underground Research and Development supporting a wide range of research projects on the geological disposal of radioactive waste. International partners from Europe, Asia and North America work together at this unique facility.

The GTS is located at an altitude of 1730 m in the granitic rock of the Aar Massif in Switzerland, lies at a depth of around 450 m beneath the surface and is reached by an access tunnel belonging to the local hydro-power company. The GTS tunnel system is around 1 km long and was excavated in 1983 using a full-face TBM.



This is an extended and updated version of NTS' regular 'Fundamentals' course which ranges across all key aspects and topical issues concerned with managing a national geological disposal programme. The extended 2018 course will be taught in the fabulous surroundings of the Grimset Test Site and will feature an in-depth examination of the past, present and future roles of underground rock laboratories in waste disposal. Full course details and a registration form are available at www.nucleartrainingsolutions.com or, if you wish to discuss your potential participation further, please contact one of the three course co-directors:

Dr Russell Alexander (NTS: russell@bedrock-geosciences.com), Dr Ingo Blechschmidt (GTC: Ingo.Blechschmidt@nagra.ch) and Dr Andrew Martin (GTC: Andrew.Martin@nagra.ch)

Teaching

The course will be held in an informal, workshop atmosphere and participants will be encouraged to interact and ask questions at all times. Each course topic will be taught by highly qualified and internationally recognised specialists from around the world. They will provide the most up-to-date and comprehensive information and discussions. Course materials will be provided for each topic. Modules will generally be taught throughout the day, with an extended lunch break. In addition, the course tutors will be present at dinner and afterwards in the hotel for free-ranging discussion and information exchange. The course language is English.

PS There will be a visit to the Mont Terri URL on Saturday, 23rd June. If you would like to join us, please tick the appropriate box in the registration form.

Fundamentals of Geological Disposal of Radioactive Wastes – a joint GTC-NTS training event

- Summer 2018 Programme -

Time	Day 1 – 25 th June	Day 2 – 26 th June	Day 3 – 27 th June	Day 4 – 28 th June	Day 5 – 29 th June
09:00	Radioactive waste management – a global outlook	Basics of post-closure performance and safety assessment II: - deciding what and when to evaluate	Site characterisation II: sedimentary host rocks	Retardation of radionuclides in the repository multi-barrier system	Repository construction techniques & operational safety
10:00	break	break	break	break	break
10:20-11:20	Waste classification, properties & national waste inventory	Building the Safety Case (SC) – just what constitutes a SC and how do we develop it?	How do we support the safety case - examination of the data requirements?	The societal dimension of radioactive waste management: stakeholder dialogue	Repository closure, monitoring and retrievability & reversibility (R&R)
11:20	break	break	break	break	break
11:40-12:40	Principles of geological disposal I: concepts and time scales	Repository design I: basic design options	The use of natural analogues in an integrated safety case and challenges for the future	Group exercise in stakeholder dialogue (who are the stakeholders, how do we build a dialogue?)	The importance of Quality Management Systems (QMS) in radioactive waste management programmes
12:40	lunch	lunch	lunch	lunch	lunch
14:00-15:00	Principles of geological disposal II: examples of host geological environments	Repository design II: alternative designs and new thinking	The role of underground research facilities and their use in an integrated safety case	Group exercise (cont.) ca. 15:30 Presentation of results by each group and discussion by peers	Group discussion: structuring a national radioactive waste management programme
15:00	break	break	Visit to the Grimsel Test Site		break
15:20-16:20	Basics of post-closure performance and safety assessment I: international standards and regulations	Site characterisation I: crystalline host rocks	- introduction to the facility - short overview of research activities - visit the site and experiments		Group discussion (cont.)
16:20-16:50	Coffee break and wrap-up discussion	Coffee break and wrap-up discussion	From sub-surface to surface – a geological excursion back to the valley		Course wrap-up, presentation of course certificates
			Finish ca. 17:30		