

Fundamentals of Geological Disposal 2010 - Japan

Last Updated Wednesday, 11 August 2010

8th – 17th September 2010, Horonobe, Japan

In collaboration with JAEA and the IAEA Network of Centres of Excellence.

You can register on-line using this registration form. Please also see the Course Assignment below the Course Programme table.

Download the Fundamentals of Geological Disposal 2010 - Japan Information flyer/poster for your notice board, cafeteria etc. available for download as a PDF (66 kb PDF file)

Course Outline

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This ten-day course is presented by the ITC in collaboration with the Japan Atomic Energy Agency (JAEA). It is a component of the IAEA Network programme for 2010. The course is designed for geological repository project managers and scientists, regulatory agencies and geosciences, environmental and engineering companies involved with both site investigation and the construction of underground rock characterisation facilities.

This is an extended and updated version of our regular ‘Fundamentals’ course which ranges across all key aspects and topical issues concerned with managing a geological disposal programme (previous ‘Fundamentals’ courses were held in 2003, 2004, 2006 and 2009). The extended 2010 course includes a visit to JAEA’s Underground Research Laboratory (URL) at Horonobe in northern Hokkaido.

The Horonobe URL. East Access Shaft (green highlighted building in the foreground) and the Ventilation Shaft (pink highlights in the background) are currently under construction

The 10-day programme for 2010 consists of;

- Lectures on topics ranging from evaluating the wastes to be disposed of, right through all the technical stages of identifying and implementing geological disposal to the societal interactions required of repository development projects. Sufficient time will be allocated for questions and discussions in each presentation module.

- A course group exercise will be held at the end of the first week. Looking at ‘Stakeholder Dialogue:theory and practice’; the course participants will be introduced to the background of communicating with a wide range of stakeholders, including examples from around the world. The participants will then be split into small groups to work together and produce their own programme for stakeholder dialogue. They will then present their ideas to their peers and course tutors and face questioning from sceptical ‘stakeholders’;

- A full day visit to the Horonobe URL will enable participants to go underground into the tunnels and shafts and to learn directly about experiments to demonstrate the feasibility and safety of geological disposal. In addition, there will be visits to the sites of the various boreholes which were drilled as part of the overall URL site characterisation, allowing the participants to see the problems faced by the site characterisation team on the ground. Where possible, a visit to a working borehole will be included in the visit.

- Finally, to round off the course, a half day will be spent visiting JAEA’s extensive laboratory facilities at it’s Tokai Works to the northeast of Tokyo.

The course is ideal for those involved in any component of a national waste disposal programme. The previous fundamental courses were attended by participants from a wide range of stakeholders in sectors such as national/provincial level decision-making authorities, implementing and regulating organisations, research organisations and universities, including both member and non-member organisations of the ITC-School.

Course Location

The course will take place in new, purpose built, teaching facility in the town of Horonobe (<http://www.town.horonobe.hokkaido.jp/>), within easy walking distance of the hotel where participants will stay. One day will be spent at the Horonobe URL (<http://www.jaea.go.jp/english/04/horonobe/index.html>), a 5 minute drive from the town, and the final day will be spent at the Geological Isolation Research and Development Directorate laboratories of JAEA's Tokai Works (<http://www.jaea.go.jp/english/04/tokai-cycle/top.htm>).

The rolling countryside around Horonobe town in Hokkaido

Other activities

On Sunday, 12th September, there will be an opportunity to enjoy a guided tour of the beauties of northern Hokkaido. A coach will transport the course participants around some of the stunning sub-arctic scenery, including views of the extinct volcano of Rishiri island, just off the coast of Hokkaido. Full details will be supplied on registration for the course.

Getting to Horonobe

Horonobe can be accessed by train from Asahikawa or Sapporo airports or by bus from Wakkanai airport. All three airports can be reached from Tokyo (either Haneda or Narita airports) and some international flights connect directly to Sapporo. Detailed travel information will be supplied to participants on registration for the course.

Course Organiser

The course is organised by the ITC-School in collaboration with, and supported by, JAEA (Japan Atomic Energy Agency) and the IAEA (International Atomic Energy Agency) within its network on Training and Demonstration of Waste Disposal Technologies in Underground Research Facilities (<http://www-tc.iaea.org/tcweb/default.asp>).

Controlled atmosphere gloveboxes at the Tokai Works

Teaching

The course will be held in an informal, workshop atmosphere and participants will be encouraged to interact and question 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 discussion and information exchange. The course language is English and course materials are printed in English.

Participants from IAEA Technical Co-operation Project

The IAEA will finalise arrangements for the INT 9.173 Technical Co-operation Project "Training in Radioactive Waste Disposal Technologies in Underground Research Facilities", of which this course is a part. A draft prospectus will be circulated by IAEA to target countries in the scheme which explains the application procedure and the support arrangements. Participants from the countries within the IAEA training scheme (Argentina, Armenia, Brazil, Bulgaria, Chile, the Peoples Republic of China, Croatia, the Czech Republic, India, Lithuania, Kazakstan, Mexico, Pakistan, Philippines, Republic of Korea, Romania, Republic of South Africa, Romania, Russian Federation, Slovakia, Slovenia, Ukraine) should contact responsible officers at the Agency as below.

Mr. Mykola Kurylchuk, Department of Technical Co-operation, e-mail M.Kurylchuk@iaea.org

Dr Paul Degnan, Division of Nuclear Fuel Cycle and Waste, email P.Degnan@iaea.org.

Participants's profile – is this course for you ?

The course is ideal for those involved in any component of a national radioactive waste programme and who have a desire to learn about the wider aspects of working in radioactive waste disposal. While some background in radioactive waste is useful, the modules have been so designed as to ensure that any participant who currently only has limited grasp of waste disposal will profit from this course. As such, interested people who are new to waste disposal should not

be put off from attending. If you are unsure if this course is for you, please feel free to contact the course director, Russell Alexander (russell.alexander@itc-school.org), for an informal chat.

To help you to get the most out of this course, we would like you to produce a short pre-course assignment. But don't worry, we are not asking you for much effort, just a little thought in advance of attending the course which will focus your thinking and give us an insight into your requirements. And don't worry if you cannot express yourself fluently, this is not a test, rather it is simply intended to help us get to know you a bit in advance. In return, you will be given the course tutors' CVs when you start the course.

The Course Assignment can be found at the bottom of the application form and should be returned by 13th August, 2010.
Course Fees

The course fees cover tuition, accommodation, breakfast, lunch, dinner and morning and afternoon refreshments for eleven days (arriving Tuesday 7th September, departing Friday 17th September), plus a course dinner, a welcome reception in Horonobe and a day trip through the beautiful scenery of northern Hokkaido on Sunday, 12th September. Course notes and other materials are also covered by the fee, as are transport during the course to field sites, labs etc.

CHF 8500 - ITC Members

CHF 9450 - non-members

Final deadline for registration is 13th August, 2010. The course fee is due within four weeks of your registration and registration is not guaranteed until we have received the course fee. If you have to withdraw from the course after paying your fee, it will be refunded in full up to 13th August 2010. After this date, it is not refundable.
Application Form

You can register on-line using this registration form. The number of places is limited, so we would advise you to register early. Please also see the Course Assignment below the Course Programme table.

Course hotel in Toyotomi village has its own thermal bath
Insurance

Please note that participants on this course, or their employing organisations, are responsible for their own personal insurance.
Course Programme

Latest Course Programme available for download (30 kb PDF file)

Tuesday, 7th September

Travel to Wakkanei, collected at the airport and transported to hotel in Wakkanei (for one night only) to meet tutors and other participants

Wednesday, 8th September

0845
Leave the hotel in Wakkanei, drive to Horonobe

1000 – 1030
Introduction & Welcomes

Participants briefly introduce themselves
R Alexander & M Naito

1030 – 1130
The concept of geological disposal
N Chapman

1030 - 1045
Coffee

1145 - 1245
The concept of geological disposal
N Chapman

1245 - 1400
Lunch

1400 - 1500
The concept of geological disposal
R Alexander

1500 - 1515
Coffee

1530 - 1700
Waste types, origins, inventories & properties
I McKinley

1700 - 1715
Coffee

1715 - 1830
Five minute presentations by participants: status of their national programmes and key issues that are currently of importance (NB where more than one person is present from one programme, please get together and combine your presentations)
All

1830 – 1845
Drive to hotel in Toyotomi

Thursday, 9th September

0900 - 1000

Repository design and safety concepts
I McKinley

1000 - 1015
Coffee

1015 – 1045
Repository design and safety concepts (cont.)
I McKinley

1045 – 1115
Engineering, constructing and operating a repository
H Kawamura

1115 – 1130
Coffee

1130 – 1230
Engineering, constructing and operating a repository (cont.)
H Kawamura

1230 - 1400
Lunch

1400 - 1500
Selecting a repository site
J Goto

1500 - 1515
Coffee

1515 – 1545
Selecting a repository site (cont.)
J Goto

1545 - 1800
Group discussion: structuring a national radioactive waste management programme. This will be introduced by three 20 minute presentations

1545 - 1645

- Decision points and staging of programmes
- Historical lessons from waste management programmes
- Case History: example from an ongoing national programme

R Alexander

1645 – 1700
Coffee

1700 - 1800
Group discussion
All

Friday, 10th September

0900 - 1000
Tectonics and repository siting
R Alexander

1000 - 1015
Coffee

1015 - 1100
Site characterisation in crystalline environments
K Amano

1100 – 1115
Coffee

1115 – 1200
Site characterisation in crystalline environments (cont.)
K Amano

1200 – 1330
Lunch

1330 - 1430
Site characterisation in sedimentary environments
K Ota

1430 – 1445
Coffee

1445 - 1515
Site characterisation in sedimentary environments (cont.)
K Ota

1515 - 1545
Degradation of engineered barriers and the mobilisation, migration and retardation of radionuclides in the deep geological environment

I McKinley

1545 – 1600
Coffee

1600 - 1630
Degradation of engineered barriers and the mobilisation, migration and retardation of radionuclides in the deep geological environment (cont.)
I McKinley

Saturday, 11th September

Group exercise: stakeholder dialogue (who are the stakeholders, what is at stake, how do we build a dialogue?)

0900 – 1000
The societal dimension of radioactive waste management
I McKinley

1000 – 1015
Coffee

1015 – 1045
The societal dimension of radioactive waste management
I McKinley

1045 – 1230
Break into groups to design a programme of stakeholder dialogue at a hypothetical repository site
I McKinley & R Alexander

1230 – 1400
Lunch

1400 - 1500
Completion of exercise
I McKinley & R Alexander

1500 – 1515
Coffee

1515 - 1715
Presentation of results by each group and discussion by peers
All

Sunday, 12th September

0900 - 1800

Tour of northern Hokkaido, including a visit to a traditional Japanese hot spring

1800 - 1900

An illustrated tour of URLs worldwide: history, objectives and an introduction to the field visit (including a brief overview of the Japanese disposal programme)

R Alexander, K Aoki & H Sakuma

Monday, 13th September

0830-1200

lecture and

exercise with

30 minute break

MAA (Multi Attribute Analysis) as an aid to siting decisions

û Objective & options to be compared

û Factors to be considered

û Data-sets

û Scoring and weighting factors

û Demonstration (interactive practice)

û Evaluation

R Alexander & I McKinley

1200 – 1330

Lunch

1330 – 1530

Continuation and completion of exercise

R Alexander & I McKinley

1530 – 1600

Coffee

1600 – 1700

Analysis of exercise

All

Tuesday, 14th September

Horonobe URL: Course participants will be divided into two groups: group 1 will do unit 1 first in the morning and unit 2 in the afternoon. Group 2 will do the same in reverse order

0800 - 1145

Unit 1: visit the Horonobe URL

0800 – 0845

Planning the Horonobe URL programme: construction and societal constraints

T Kunimaru

0845 – 0930

Designing the Horonobe URL – engineering and societal constraints

Y Sugita

0930 – 0945

Coffee

0945 – 1145

Overview of the Horonobe URL project

Going underground: visit the URL

K Aoki et al

1145 – 1300

Lunch

1300 – 1630

Unit 2: URL site characterisation

1300 – 1400

Designing the Horonobe URL site characterisation programme – site selection and surface-based investigations

K Hama

1400 – 1415

Coffee

1415 – 1645

Long-term geosphere evolution of the Horonobe URL site and visiting the outcrop

T Niizato

Wednesday, 15th September

0900 – 1000

Basics of performance and safety assessment

- Common basis of radiological safety standards and different regulations worldwide

- What is a safety case?

H Umeki & I McKinley

1000 – 1015
Coffee

1015 – 1045
Basics of performance and safety assessment (cont.)

- Setting PA/SA objectives: deciding what to evaluate and when

H Umeki & I McKinley

1045 - 1115
Objectives and different methods of safety assessments

- Probabilistic and deterministic methods

H Takase

1115 – 1130
Coffee

1130 – 1230
Objectives and different methods of safety assessments (cont.)

- Scenario definition and use

- Calculational methods and tools

H Takase

1230 – 1400
Lunch

1400 – 1500
Examples of safety assessment structures and results in different national programmes
H Umeki & I McKinley

1500 - 1515
Coffee

1515 - 1615
Showing it is safe: other ways of presenting the evidence

- Geochemical indicators

- Natural analogues

R Alexander & N Chapman

1615 - 1645
Wrap up and close

1830
Course dinner

Thursday, 16th September

0900 - 1000
A history of problems and setbacks: examples of how programmes have encountered problems and dealt with them

R Alexander

1000
Leave for Wakkanai airport (12:00 flight to Tokyo Haneda)

ca. 1400
Bus to Mito, overnight in hotel

Friday, 17th September

Visit JAEA- Tokai R&D Center

0930 - 1015
Introduction to JAEA
M Yui

1015 – 1030
Coffee

1030 - 1200
Visit various JAEA labs
C Walker

1200 - 1300
Lunch

1300 – 1310
Course wrap-up and end of course
R Alexander & M Naito

1310 - 1330
Farewell from JAEA
H Ishikawa

1330
Leave for hotel to pick up luggage

1430
Travel to Narita airport by bus or Tokyo by train (instructions will be provided)

Course Assignment

Course Assignment – please email to Gabi Vonlanthen (gabi.vonlanthen@itc-school.org) by 13th August, 2010 with 'Fundamentals Course' in the subject line.

- why have you chosen this course?
 - what are your learning objectives for the course?
 - what other objectives do you have for the course?
 - tell us a little (a couple of sentences) about your educational and professional background
 - tell us a little about your current job – and about any relevant projects you are currently working on or have recently completed. How do these relate to a course on the fundamentals of waste disposal?
 - if not covered in the previous question, what is your previous experience in cement studies in general and in the field of waste disposal in particular?
 - is there any specific area of the geological disposal of radioactive waste where you expect to increase your knowledge by the end of the course?
-
- pick at least one topic from the agenda bearing in mind that this should be your 'guiding theme' during the course
 - how is this topic relevant to your disposal system?
 - what is already known about the topic?
 - what more do you need to know on the topic?

As an outcome of the course, we expect you to prepare a short plan on how you are going address your topic using the

additional knowledge gained during the course – this will help both you and us assess if we have addressed your training requirements appropriately.