



“By 2025, the first geological disposal facilities for spent fuel, high-level waste and other long-lived radioactive waste will be operating safely in Europe.”

EDITORIAL

Dear Reader,

Five years after the production of the Vision document, the IGD-TP is now a well-established platform with 115 participants. The platform serves as an important tool for the coordination of RD&D in the field of geological disposal at the European level.

In 2013, three new Technical and Scientific Working Groups and one Information Exchange Platform were initiated following the fruitful discussions held during the 4th Exchange Forum (EF4) in 2013. In addition, the platform has strengthened its links and interactions with other platforms, forums and initiatives such as ENEF, SNETP and EESC.

Following the interdisciplinary study and the symposium on “Benefits and limitations of nuclear fission for a low-carbon economy”, held in February 2013, the European Commission produced the H2020 Euratom work programme 2014-2015. It takes into account the main conclusions of the research panel which stressed the need for stronger coordination and integration of Member States’ programmes with a strong involvement of the civil society in defining research needs.

Consequently, the IGD-TP’s participants are actively preparing technical projects in line with the key priorities expressed by implementors in the Strategic Research Agenda. Furthermore, a coordination and support action is in preparation together with SITEX, which represents expertise organisations such as Technical Support Organisations (TSOs) and JRC-ITU. This action aims at developing synergies and increasing coordination of national research programmes in the field of management of spent fuel and radioactive waste geological disposal. All strategic aspects linked to a stepwise move towards European Joint Programming is being reviewed through this action.

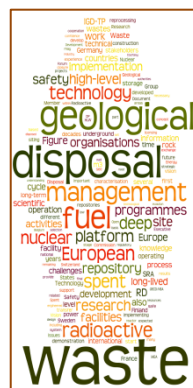
After the success of the EF4, IGD-TP is organising the EF5 on 28-30 October in Kalmar, Sweden. You will find more details in this newsletter.

See you in Kalmar in October!

Monica Hammarström



CONTENT



Editorial 1

IGD-TP News & Activities 2

Announcement

Past Events

JA14 CMET WG

JA4 Monitoring the Environmental Reference State

RD&D Dissemination WG



News from Technical Projects..... 7

DOPAS

LUCOEX



Focus on H2020.....9

Director of publication: M. Hammarström, Chair IGD-TP

Editorial team: Secretariat of IGD-TP: J. Delay, R. Kowe and M. Garcia

Contributors: J. Hansen, M. Palmu, J. Gugala, E. Leclerc

Contact: secretariat@igdtp.eu - Website: www.igdtp.eu

Intranet: <https://service.projectplace.com/>



ANNOUNCEMENT

IGD-TP 5th Exchange Forum

28-29th October 2014, Kalmar, Sweden

After the success of the last Exchange Forum held in Prague in 2013, the IGD-TP is organising its **5th Exchange Forum**. It will take place on October 28-30 in Kalmar, Sweden. The main objectives are to:

- Present IGD-TP on-going activities, collaborations and main achievements with a focus on the handling of uncertainties in the safety case, microbiological studies and new waste form developments in collaboration with SNETP,
- Discuss, after four years of implementations, if SRA's priorities are adequately covered by the joint activities and associated projects
- Explore new ideas that could complement our SRA priorities and lead to new Research, Development and Demonstration Topics for the next five years

To fulfil these objectives, the EF5 will last three days. Besides plenary sessions comprising **keynotes given by officials and experts**, four **parallel working group sessions** will be held to discuss priorities and new technical initiatives.

In addition a **special session** will be organized by the **Competence Maintenance, Education and Training (CMET)** group with the aim of having the platform's views on the feasibility of a voluntary accreditation scheme and its prerequisites within the geological disposal community.

Finally, the EF5 will give participants the opportunity to present their work in a **poster session**.

A **visit of Äspö Laboratory** will be organised on October 30th (*Limited number of participants*).

EF5 Working Groups

WG1
Safety Case: Handling of uncertainties

WG2
Microbiological Studies

WG3
Information Exchange Platform with SNETP

WG4
New ideas & proposals for projects and collaboration

Registration

In order to register and/or submit a presentation / poster, please fill in the [registration and application form](#) and send it to the Secretariat at secretariat@igdtp.eu.

Deadlines

Call for poster & presentation will close on **August 31, 2014**.

Registration will be open until **September 15, 2014**

SAVE THE DATE!

22nd International Conference on Nuclear Engineering (ICONE22)

Date: 7-11th July 2014

Place: Prague, Czech republic.

First-Nuclides Final Workshop

Date: 1-2nd September 2014

Place: Karlsruhe, Germany

6th International Summer School: Operational Issues in Radioactive Waste Management and Nuclear Decommissioning

Date: 8-12th September 2014

Place: Ispra, Italy

International conference on Key topics on deep geological disposal

Date: 25-26th September 2014

Place: Cologne, Germany

Constructing Memory, Conference and Debate on the Preservation of Records, Knowledge and Memory of Radioactive Waste across Generations

Date: 15-17th September 2014

Place: Verdun, France

IGD-TP 5th Exchange Forum

Date: 28-29th October 2014

Place: Kalmar, Sweden

WM 2015

Date: 15-19th March 2015

Place: Phoenix, USA

CLAY Conference

Date: 23-26th March 2015

Place: Brussels, Belgium

PAST EVENT

SecIGD2 Project, WP2

IGD-TP Geodisposal 2014

24-26th June 2014, University of Manchester, UK

Rationale

As part of an IGD-TP work package to network, structure & develop Research, Development and Demonstration programmes and competences in countries with less advanced geological disposal programmes, IGD-TP Geodisposal 2014 took place in The University of Manchester and gathered more than 280 people from 24 countries from Europe and beyond.

The objectives were to:

- Engage the countries with 'less-advanced' programmes and share best practices in geological disposal research and implementation;
- Showcase the underpinning science, technology and stakeholder engagement in geological disposal

The conference sessions were selected based on the topics in the SRA, those raised in the last IGD-TP Exchange Forum and the needs of the less advanced programmes and wider community.

All details to be found at:

www.meeting.co.uk/confercare/geodisposal2014/



RSC | Advancing the
Chemical Sciences



The
Geological
Society

-serving science & profession

MANCHESTER
1824

The University of Manchester

The main conference sessions were:

- Developing programmes for geological disposal - experience and lessons from advanced and less-advanced programmes
- Disposal concept, design and technology development
- Radionuclide and gas behaviour
- Knowledge transfer
- Natural systems, including biogeochemistry, biosphere and geosphere
- Safety case
- Engineered barriers, wasteforms and criticality
- Siting
- Societal aspects
- Future IGDT activities, Horizon 2020, involving newer member states.

Poster sessions attended by the authors were held during the meeting.

The outputs from the conference will be captured in a special, peer reviewed and Open Access issue of Mineralogical Magazine.

IGD-TP NEWS & ACTIVITIES

JA14 COMPETENCE MAINTENANCE, EDUCATION AND TRAINING

CMET Working Group

The CMET working group was established in 2012 in order to tackle the need to preserve and develop competence in geological disposal (GD) in Europe. CMET group consists of 30 volunteers from 14 different European countries representing 6 different organisational types from 27 different organisations. The group has met, since its first meeting, three times during the period late 2013 to early 2014.

CMET Objectives

- Transfer of state-of-the-art and new competence needs of the geological disposal (GD) community to reach "Vision 2025".
- Quality assurance of training for professionals the support of a voluntary accreditation scheme.
- Compile education & training approaches and content into a type of curriculum/curricula for professionals in GD.
- Ensure indirectly that both providers and new personnel will be available, now and in the future.

The current work of the group is focused on two major activities:

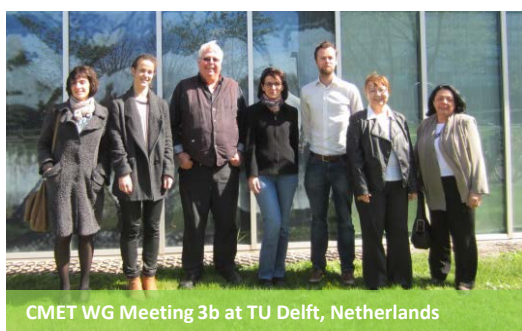
- Production, by the end of 2014, of the **CMET Strategy and Action Plan (StrAP)** which will identify and partly address the actions needed in the field of competence maintenance, education and training to progress towards IGD-TP Vision 2025. In practice, a set of actions to meet the CMET group's objectives will be carried out with the aim to assist in the initiation of deployment of the SRA and scheduled until 2016. A first step was to issue a brief questionnaire to the on-going JAs. The group has also strong interactions with training providers in the geological disposal community via links to the European Fission Training Schemes and especially to Petrus3 project.
- **Feasibility study about a voluntary accreditation of training programme and the learning outcomes of an individual.** This work is taking advantage of the pilot actions running in the EU related to the implementation of the ECVET approach - European Credit system for Vocational Education and Training - that addresses an individual's capabilities in terms of the mastery of Learning Outcomes defined by the relevant Knowledge, Skills and Competence.

Work on defining the Learning Outcomes has commenced for the Nuclear Energy Sector in workshops organised by [EHRO-N](#) operating under JRC/IET. The newly published [SET Plan Roadmap on Education and Training](#) includes several recommendations to the energy sector as a whole and also related to the benefits expected from the ECVET approach and sector specific skills councils.

In the coming IGD-TP Exchange Forum (EF5), a special session will be organized by the CMET group with the aim of having the platform's views on the feasibility of a voluntary accreditation scheme and its prerequisites within the geological disposal community. The [European Nuclear Education Network](#) (ENEN) will also contribute to the CMET session by providing one of the Key note speeches of EF5.

In the future, at the different stages of the repository development programmes, further approaches and actions to carry out competence maintenance, education and training promotion are required. It is crucial to start capturing the Knowledge, Skills and Competence accumulated in geological disposal over the decades of RTD, by documenting and making the education and training needs for the new professionals more transparent. The CMET working group contributes in part to this competence maintenance, but the work ahead is quite comprehensive and requires more input from everyone in the community to prevent an unnecessary loss of expertise.

Participating in CMET session during EF5 in Kalmar is thus an important step for organisations concerned with preserving the competence and willing to contribute to its maintenance.



CMET WG Meeting 3b at TU Delft, Netherlands

CMET Publications in 2013

[Towards a European CMET Strategy: The CMET Working Group Actions within IGD-TP](#), Euradwaste 2013

[The CMET Working Group Actions Within IGD-TP. Feasibility of Voluntary Accreditation in Geological Disposal Using ECVET Approach](#). NESTet2013.

IGD-TP NEWS & ACTIVITIES

JA4

Monitoring the Environmental Reference State

The objectives of the IGD-TP Joint Activity 4 (JA4) “**Monitoring the Environmental Reference State**” are defined as follows: “How to define, structure, organize and manage the studies associated with the assessment of a reference state of the environment before beginning the construction works”. JA4 will focus on developing methodologies to define and monitor the reference state. Because the environment is a highly dynamic system made of multiple components (biosphere, hydrosphere, atmosphere, lithosphere, geosphere) interacting at different scales (space and time), a few years of monitoring are required to obtain a good representative view of the reference state. Therefore, collecting and organizing the data in order to comply with the regulations and answer the public expectation is a real challenge. There is a need for a methodology to define and monitor the relevant parameters characterizing the environmental reference state.

The kick-off meeting of the JA4 - Monitoring the Environmental Reference State, recently led by Elisabeth Leclerc, took place in France the 14th of January 2014. A second meeting was organized on March 20th in Chatenay-Malabry and a third on May 20th in London.

The group has worked on a H2020 proposal and defining major items to deal with: state of the art of existing recommendations, methodological and technical innovative approaches for hydrogeology and subsurface studies, biodiversity reference state, socio-economic reference state and radiochemical reference state: monitoring and banking. A focus is also made on information and communications technology (ICT) towards local stakeholders.

JA4 is a global dialogue and knowledge exchange platform which aims to develop a multi-disciplinary methodology for geological disposal sites. Special focus will be on Environmental Impact Assessment (EIA) and knowledge exchange at the pan-European level.



IGD-TP JA4 Members: Elisabeth LECLERC (Andra, France), Christophe DEPAUS (ONDRAF, Belgium), Edith BEISING (Nagra, Switzerland), Antonietta RIZZO (ENEA, Italy), Juan C. MAJOR ZURDO (Enresa, Spain), Mikael GONTIER (SKB, Sweden), Ivan VERONESE (UNIMI, Italy), Tuomas PERE (Posiva, Finland), Marie-Claire CANTONE (UNIMI, Italy), Herwig MUELLER (Nagra, Switzerland), Mark GOUGH (RWM, UK).

IGD-TP NEWS & ACTIVITIES

CC4 - COMMUNICATION & DISSEMINATION

SecIGD2 - RD&D dissemination Working Group

The working group (WG) on RD&D dissemination is part of the SecIGD2 Work Package 2 "Support for networking, structuring and developing RD&D competences in countries with less advanced geological disposal programmes".

The working group has produced a questionnaire and collated responses to identify needs from less advanced programmes. The outcome of the questionnaire, which was presented to the 4th IGD-TP Exchange Forum in Prague 2013, showed that there were three categories of needs, specifically:

1. IGD-TP SRA-related information

- Research needs that align with topics identified in the SRA
- Straight-forward measures considered to improve access to information, key people and general awareness/involvement in existing or new projects

2. Non IGD-TP SRA-related information

- Research needs not prioritised in the SRA
- Considered realistic and achievable ways for improving collaboration for shared research priorities beyond straightforward commercial-oriented 'technology transfer (TT)'

3. Process & programme infrastructure information

- Programme infrastructure, information and processes required to fulfil EC Directive 2011/70/EURATOM
- Considered how cooperation between advanced programmes and less-advanced programmes could be improved and synergies with existing / parallel groups, beyond 'TT'

The third WG meeting was held at the European Commission, Brussels in March 2014. There were sixteen attendees with the less advanced programmes strongly represented (Hungary, Italy, Lithuania, Romania, Netherlands, Slovakia, Slovenia, Croatia).

The working group will produce a roadmap which will act as a guide that sets out the high-level steps of an RD&D programme to support geological disposal at a national strategic level. The guide will focus on what are the RD&D needs to support a safety case, drawing, where possible, on advanced waste management organisations' experience. It will also serve to help as a first response to the RD&D related aspects of the EC Directive. The roadmap will signpost open documentation and guidelines for specific technical areas.

The aim is to have a first draft by the 5th IGD-TP Exchange Forum meeting October 2014 (Sweden). The guide would then be reviewed and prepared for publication with Executive Group agreement by March 2015.

NEWS from TECHNICAL PROJECTS

DOPAS

JA2

DOPAS project meetings

Andra hosted **DOPAS project meetings** in Saint-Dizier, France in October 8-10th 2013.

Work Package 3 (WP3 Design and technical construction feasibility of the plugs and seals) and Work Package 4 (WP4 Appraisal of plug & seal system's function) meetings did collect almost all DOPAS organisations to share the information related to the experiment design, material specifications, monitoring and the progress of the DOPAS full scale experiments. Full-scale seal (FSS) by Andra is under construction and this was a unique opportunity to observe how concrete and bentonite specifications have been developed and tested before they will be emplaced in the full scale installation. The presentation was given by the subcontractors participating to the project in addition to the Andra staff and this guaranteed a good discussion about FSS details and challenges related to the experiment.



© Andra

The integration of information to the WP3 and WP4 summary reports was also planned. Beside the WP3 and WP4 meetings also the design basis for POPLU Experiment and FSS Experiment were discussed in smaller groups as background for WP2 reporting.

DOPAS staff exchange programme

The DOPAS staff exchange programme is intended for persons from the DOPAS consortium member organisations (only). The purpose of the visits is to learn from the DOPAS experiments and to provide also input to the experiment they visit. The participants should be engaged with work tasks within the scope of the different DOPAS work packages (like materials, construction, design basis and engineering, performance assessment) and/or with direct technology development related to closure, plugging, and sealing in their own organisations, but not necessarily working directly for DOPAS Experiments. The first opportunity for visit was FSS Experiment in Saint-Dizier in June 2014. Next opportunities will be EPSP and POPLU experiments (dates to be fixed).



EURADWASTE 2013

DOPAS posters were presented at Euradwaste 2013 conference. Posters are available: [here](#), [here](#) and [here](#).

MANCHESTER 2014

DOPAS was also presented in IGD-TP Geodisposal in Manchester 2014.



The **DOPAS newsletter 2** has been published in May 2014 and is available [here](#).

Visit <http://www.posiva.fi/dopas>



NEWS from TECHNICAL PROJECTS

LUCOEX

JA2

LUCOEX Project Update



Initiated in 2010, LUCOEX (Large Underground Concept Experiments) aims to prove the technical feasibility for a safe and reliable gallery construction, manufacturing and emplacement of buffer components, emplacement of waste packages and finally backfilling and sealing of galleries for four different repository concepts. Two of these proof-of-concept installations are now in a monitoring phase while two will be finalized during 2014.

MPT-INSTALLATION SUCCESSFUL

The Multi-Purpose-Test (MPT) which is a proof-of-concept installation for KBS-3H horizontal disposal in crystalline rock was successfully completed during the end of 2013 and the installation is currently being monitored. The goal is now to finalize the reporting of the lessons learned and to conduct a first analysis of the gathered data from the experiment.

TEST-PREPARATIONS IN ONKALO

In the KBS-3V emplacement test in Onkalo is a proof-of-concept emplacement for vertical disposal in crystalline rock we have updated the technique for emplacement based on feedback from other work packages and we are now preparing the upcoming tests planned for the fall of 2014. This includes the construction of a test hall, finalizing the machinery and the manufacturing of buffer components.

NEW MACHINE IN SWITZERLAND

The Full-Scale Emplacement Experiment in Mont Terri is a proof-of-concept installation for the Swiss SF/HLW disposal concept with the goal to optimize the bentonite buffer material production and emplacement procedures during realistic conditions. They have so far completed the excavation and gallery construction and have started the instrumentation of the experiment. In parallel they have done full-scale mock-up tests to optimize the emplacement density and actively worked with the design and manufacturing of the prototype machine to be used for backfilling of the horizontal FE tunnel.



MONITORING PHASE INITIATED IN BURE

The first work package to complete their technical work within LUCOEX is the Proof-of-Concept installation performed in Bure, where ANDRA successfully performed the excavation, component manufacturing, installation and sealing of the galleries in accordance with the French concept for geological disposal. They have now initiated a multi-year Heater Experiment to analyse the interaction between the clay barriers and the heat from the spent fuel.



New Deliverables

The following new deliverables are now available for download on www.lucoex.eu:

- [Manufacturing of buffer and filling components](#)
- [Deposition machine upgrades](#)
- [Designing the gap filling tool](#)
- [Digging and emplacement of the cell](#)



Presentations

Further information regarding LUCOEX can be found in the Posters from the [IGD-TP conference](#), the last [LUCOEX newsletter](#) and at the LUCOEX homepage (www.lucoex.eu).

FOCUS on Horizon 2020

Framework Programme for Research and Innovation (2014-2020)

First EURATOM Work Programme and call (2014-2015)

The **Euratom Research and Training Programme** complements **Horizon 2020** in the field of nuclear research and training. Its general objective is to pursue nuclear research and training activities with an emphasis on continually improving nuclear safety and radiation protection, notably to contribute to the long-term decarbonisation of the energy system in a safe, efficient and secure way. By contributing to these objectives, the Euratom Programme shall reinforce outcomes under the three priorities of the Horizon 2020: excellent science, industrial leadership, and societal challenges.

The 2014-2015 work programme was adopted December 11th, 2013 by the Commission and is available on the European [Commission Participant Portal website](#).

The related calls for proposals were published December 11th, 2013. The activities funded by the Work Programme are organised in five main sections:

- A. Support safe operation of nuclear systems
- B. Contribute to the development of solutions for the management of ultimate radioactive waste
- C. Foster Radiation Protection
- D. Cross-cutting aspects for nuclear fission and radiation protection
- E. Support the development of nuclear competences at Union level and socio-economic aspects.

Section B (*Contribute to the Development of Solutions for the Management of Ultimate Radioactive Waste*) consists of three topics:

1. EU concerted development of Joint Programming of Member States research programmes (NFRP-04-2014)
2. Supporting the licensing of geological repositories (NFRP-05-2014)
3. Supporting the implementation of the first-of-the-kind geological repositories (NFRP-06-2014)



CALL FACTS

- **Call publication** 11th December 13
- **Call deadline** 17th September 14
- **Evaluation** 29 Sept/24 Oct 14
- **Negotiations** Nov. 14/Jan. 15
- **Projects launch** March 15
- **Budget** €87,870,000

GET SUPPORT

[National Contact Points \(NCP\)](#)

[Enterprise Europe Network](#) – contact your EEN national contact point for advice to businesses with special focus on SMEs. The support includes guidance on the EU research funding.

[European IPR Helpdesk](#) assists you on intellectual property issues.

[IT Helpdesk](#) – contact the Participant Portal IT helpdesk for questions such as forgotten passwords, access rights and roles, technical aspects of submission of proposals, etc.

[Partner Search Services](#) helps you find a partner organisation for your proposal.

[H2020 Funding Guide](#) your online guide on the procedures from proposal submission to managing your grant.