What is PETRUS?

PETRUS III is a Eurotom programme for nuclear research and training. The Consortium includes representatives from twelve different countries all over Europe who work in the nuclear domain at universities and different education and training institutions as well as established companies and agencies in the nuclear sector.

The essential objectives of the project are:
- the practical implementation of an accredited training programme following ECVET principals, leading to a recognised qualification in geological disposal
- the creation and design of a multidisciplinary training and research framework for PhD students
- the development of strategies and frameworks for maintaining the PETRUS initiative long-term.
Dear Reader,

A warm welcome to the pages of the first issue of Petrus Newsletter!

It is indeed a pleasure to introduce this new initiative adopted by our Consortium within the FP7 EURATOM PETRUS III project dealing with issues related to Education and Training in Geological Disposal of radioactive waste.

Since 2005 “PETRUS” projects have been coordinating the efforts made by European Framework Programmes Universities, Radioactive Waste Management Organisations, Training Providers and Research Institutes to develop a cooperative approach to Education and Training (E&T) in the field of geological disposal.

The objective is to ensure the continuation, renewal and improvement of professional skills by filling the gap between growing demand for structured education and training and the current offering that is fairly limited.

Launched as a part of ENEN II project under FP6 and later granted full project status within FP7 EURATOM EFTS, the PETRUS Consortium works on innovative strategies for sharing resources from both academia and industries. Throughout the years, we have, amongst others i) analysed the end-users’ needs and mapped the existing supply resources in E&T, ii) successfully implemented in several partner universities 130 hours of specialised common courses that address Master’s students in Geosciences, iii) developed the framework for qualification oriented modular training programmes for professionals, iv) set up synchronous e-learning methodology and broadcast live lectures into multiple distance sites and v) initiated the end-user council for long-term collaboration between end-users and E&T providers.

The new project (PETRUS III) aims at consolidating our Consortium efforts and increasing effectiveness of the European Cooperation for maintaining a high level of expertise and human resources in the field of radioactive waste disposal. Indeed, greater efforts are still necessary to encourage young generations to consider the nuclear field and particularly radioactive waste disposal as a career choice. We look forward to this challenge, but also to new ones we have set ourselves such as the training of high-quality PhD students and early career researchers through short cross-disciplinary programmes, the implementation of a Professional Development programme using a competence-based approach and ECVET based model and the development of a strategy and framework for the sustainability of the PETRUS initiative.

Dear Reader, from the very beginning of our venture, one of our objectives has been to attract wide support from and involvement of any stakeholder interested in cooperative development of E&T in geological disposal. The establishment of communication channels with the “Competence Maintenance, Education and Training” (CMET) Working Group of the “Implementing Geological Disposal of Radioactive Waste Technology Platform” (IGD-TP) has been a decisive step towards this goal.

"maintaining a high level of expertise and human resources in the field of radioactive waste disposal"

With the launch of this newsletter we would like to broaden the circle and share the outcomes of our project with a larger audience than our rather small radioactive waste community. This newsletter aims to function as an information, discussion, reflection and dialogue forum. The conceptual strategy is anticipative, reflecting our wish to involve more universities, more employers, more professionals and other interested groups in the debate for the development of a shared understanding and of future models for integrated E&T in geological disposal of radioactive waste.

Starting with this issue, PETRUS Newsletter will be published every six months using an open access model allowing all interested readers to have free on line access through our web site.

We will be happy to receive your comments and suggestions. Please feel free to communicate your feedback to Prof. Petra Norroy (petra.norroy@univ-lorraine.fr) for inclusion in our forthcoming issues. We would also like you to help us disseminate this newsletter to your network.

We look forward to hearing from you!
The PETRUS III project members met in Cardiff, Wales for their second meeting on 11th and 12th March this year, welcomed by Cardiff University. The initial kick-off meeting was held in October 2013 in Nancy, France and hosted by the École des Mines on their new campus. This second meeting was the opportunity to iron out any teething problems and clearly establish the roles of the different groups within the project, such as the General Assembly, the Steering Board and the End-user Council. All document storage and project visibility was clarified and Pedro Dieguez from ENEN introduced himself to members and emphasized his open approach and desire to help with the sustainability of the project.

Work Package leaders gave a progress report on their work and the significance of the bio-level in waste management was highlighted along with its corresponding importance in E&T. It will be included in PETRUS III programmes. The link between the IGD-TP’s CMET and PETRUS III was also discussed and Jacques Delay, Secretary General of the IGD-TP, has since given his full approval for the organization’s participation in this newsletter. There was a fruitful discussion on the furthering of the current Master’s programme (set up and implemented in PETRUS II) and members also began their collaboration on the organization of the future PETRUS III PhD events, the first of which is to be held in 2015. A new member was welcomed to the project, Claudia Vivalda from NIDIA, Italy. The next meeting is scheduled for October of this year and will be hosted by Linnaeus University in Sweden and include a much anticipated visit to the Aspö facility.

29th April 2014.
The objective of this work-package is to use the “European Credit system for Vocational Education and Training” (ECVET) principles and to develop “competence-based” curriculum for the elaboration of the radioactive waste disposal Professional Development training program that will be accredited for qualification at academic Master’s level in WP2. ECVET integrates existing instruments such as European CV, diploma supplement, Europass training, etc. into a single framework in order to secure staff career pathways and to ensure that credit gained can be internationally recognized. A core element of the project is the establishment and further, consolidation of an ECVET partnership in this sector in order to create a framework for credit transfer and mobility. Works foreseen in WP1 will be achieved in close connection with WP4 and link with the IGD-TP CMET working group. So far, two professional profiles of a safety engineer for radioactive waste management have been established:

1. A research & Development Safety engineer who is in charge of integrating a variety of geochemical and hydrogeological data on a specific site using simulation tools to predict a dose to the Public due to radionuclides migration through the geosphere.

2. A Safety engineer who is responsible for the preparation of regulatory filings and the analysis of industrial hazards applied to the nuclear sector. He is responsible for analyzing, drafting and checking of documents constituting the safety standards used by designers and nuclear operators to obtain the necessary permissions.

The work package 2 of the Petrus III-project aims to delineate a pathway to obtain a Master’s degree with recognition agreements from other partners. Consequently, the objective is to implement the PETRUS training programme at least in one of the partner universities. The contents of such a programme will be based on the professional profiles and key occupational tasks delineated for the nuclear waste management sector. These will also define the core competences of these professional profiles that the trainee must therefore have. The competences will not only be domain-specific but also include generic (engineering) competencies. Besides formal academic training, professional development is commonly achieved by vocational training. Therefore, this project will enable utilization of the European Credit System for Vocational Education and Training (ECVET) besides the European credit transfer and accumulation system (ECTS). This can be achieved by a mutually recognised system between the participating institutions of higher education, which will accept the learning outcomes obtained either by academic or vocational training as a part of the MS-degrees they offer. The key output of work package 2 will be the necessary documentation for accreditation.
The objectives of WP3 are to promote and develop the scientific research potential, notably by pooling human and material resources and by facilitating exchange between PhD students. Scientific and engineering issues involved in seeking safe solutions for geologic disposal of the radioactive waste are diverse. Progress in such a domain implies that young researchers synthesise and apply principles from a diverse set of disciplines. The competence of numerous professors from different disciplines and the technical expertise of the End-users have already been merged to build Master’s courses within the PETRUS II project. The objective of PETRUS III is to extend this cross-board collaboration to the creation of training programmes and multidisciplinary research tasks for PhD students. The initiative includes i) deepening and diversifying the knowledge of the young researchers by creating specific training programmes and periodic PhD events (the organisation of which is already underway – watch this space!), ii) facilitating PhD students’ exchange by creating an inter-university collaboration framework, and iii) favouring the emergence of multidisciplinary research by proposing PhD topics supervised by professors from different disciplines. To achieve these goals the project will also seek to extend collaboration with competent institutions (i.e. universities and research centres) outside the consortium.

One of the aims of PETRUS III Work Package 4 is to set up a Steering Board to foster the organisation and the management of both the existing PETRUS educational programme and the future Professional Development training programme. Based on End-user council recommendations from the PETRUS II project, the Steering board has been established. WP4 will focus on coordination between the End-user council and the Steering board. This Work Package will also maintain links between PETRUS III and IGD-TP’s CMET WG in order to guarantee the sustainability of E&T initiatives and their deployment and ensure that they continue to rely on the support of the whole radioactive waste community.

WP5 addresses sustainability and continuation of the PETRUS initiative from both the structural and organisational point of view, as well as cooperation outside of the EU. Links with the ENEN Association will develop a long-term vision and create a coherent and dynamic strategy for achieving the integration of the education and training on radioactive waste disposal in this Association. The objective is to integrate the PETRUS consortium into the ENEN structure in order to ensure permanent structural management, widen its overall means and place the E&T on radioactive waste disposal on a sound basis for interaction with other sectors of nuclear E&T managed by the ENEN. As leaders of Work Package 5, we want to prepare an agreed work plan to study and evaluate the integration of the Petrus consortium into the ENEN Association structure for the common benefit of all stakeholders during the next months. We are ready to share our experience in accreditation and mutual recognition; and study how to perform the adaptation of the “European Master of Science in Nuclear Disciplines”, the label developed by the Association, to be used in the frame of radioactive waste disposal. According to the current structure of ENEN there are several possibilities to incorporate radioactive waste disposal education and training coordination under the Association umbrella. We want to find an agreed approach to education and training to increase the visibility, involvement, and funding and support for the consortium.
IGD-TP 5th Exchange Forum (EF5), 2014
28 October 2014 - 30 October 2014
Kalmar, Sweden
www.igdtp.eu

ICOND 2014 - International Conference on Nuclear Decommissioning
28 October 2014 - 30 October 2014
Essen, Germany

MoMaS meeting
17 November 2014 - 21 November 2014
Marseille, France
MoMas (Modeling, Mathematics and numerical Simulations related to nuclear waste management problems). MoMaS proposes numerical benchmarks to help evaluate computer codes.

11 Mar 2015 - 19 Mar 2015
Phoenix, AZ, USA
www.wmsym.org

ANS meeting (CONTE)
1 Feb. 2015 – 4 Feb. 2105
Jacksonville, USA
The Conference on Nuclear Training and Education, organized by the American Nuclear Society will take place from 1st February to the 4th February 2015 at the Hyatt Regency Jacksonville Riverfront in Jacksonville, USA. The conference will cover areas like Hu Performance Improvement, Workforce Planning/Recruiting/Nucp/Partnerships, Personnel Training/Qualification/Education, Engineering Training And Education, Leadership Development, Iaea/Capacity Building/Workforce Development/Newcomer,Countries, Training For New Nuclear Plants.
www.ans.org/meetings/m_190
A permanent IGD-TP Working Group on "Competence Maintenance, Education and Training" was set up in alignment with the platform’s commitment to facilitate access to expertise and technology and maintain competences in the field of geological disposal for the benefit of European Member States. The aim of PETRUS III Work Package 4 (WP4) is to interact with the IGD-TP and its CMET Working Group. The PETRUS III consortium will complement the work of the IGD-TP Working Group CMET from the E&T provider side. Creating the link between PETRUS III project and CMET appears as a natural process especially as during the PETRUS II project the consortium actively provided consulting comments to the IGD-TP's SRA and continued this work on the IGD-TP Deployment Plan. The PETRUS network is mentioned as an active provider in the field of E&T in geological disposal in this plan. This link was also recommended by the PETRUS end-users council as a key element for the sustainability of the PETRUS initiative.

"Creating the link between PETRUS III project and CMET appears as a natural process"

Pilot activities, led by consortiums such as PETRUS II and its continuation PETRUS III, also provide input to CMET and work is being done towards the voluntary accreditation of the European Fission Training Schemes (EFTS). CMET WG has already organised four meetings, the PETRUS III interaction was presented at the second meeting. Based on discussion further actions were proposed.
ENETRAP III (European Network for Education and Training in Radiation Protection – part III)
Grant Agreement number: 605159
Project starting date: June 1, 2014
Project duration: 48 months
Scientific representative: Michèle Coeck, SCK•CEN, Belgium

ENETRAP III adds new and innovative topics to existing E&T approaches in Radiation Protection. It will further develop the European reference training scheme with additional specialized modules for Radiation Protection Experts working in medical, geological disposal and Nuclear Power Plant. It will implement the ECVET principles and will establish targeted assistance from regulators that will play a crucial role in the endorsement of the proposed courses and learning objectives. ENETRAP III will introduce a train-the-trainer strategy. All organised pilot sessions will be open to young and more experienced students and professionals. In this way, ENETRAP III aims to contribute to increasing the attractiveness of nuclear careers and to lifelong learning activities. A web-based platform containing all relevant information about E&T in Radiation Protection will facilitate an efficient knowledge transfer and capacity building in Europe and beyond. ENETRAP III will also propose guidance for implementing E&T for Radiation Protection Experts and Officers, hereby providing extremely important assistance to all Member States who are expected to transpose the Euratom BSS requirements into their national legislations. Moreover, ENETRAP III will demonstrate the practical feasibility of earlier developed concepts for mutual recognition and thus provide leading examples in Europe demonstrating effective borderless mobility. For all these activities, ENETRAP III will strongly connect with all stakeholders, i.e. end-users, E&T providers, legal authorities, and to other relevant international organisations, groups and networks dealing with E&T in radiation protection. The kickoff meeting of the ENETRAP III project was held on 4 June 2014 in Brussels. The project encompasses 13 partners from 9 countries.
Partners:

Université de Lorraine (FR) | POSIVA Oy (FI) | ENEN (FR) | Ecole des Mines de Nantes (FR) | Cardiff University (UK) | Linnaeus University (SE) | MICANS (SE) | SURA Oy (CZ) | ARAO (SI) | ENRESA (ES) | Aalto University (FI) | Universidad Politecnica de Madrid (ES) | Czech Technical University (CZ) | Universitatea Politehnica Din Bucuresti (RO) | CEA (FR) | IST-ID (PT) | Delft University of Technology (NL) | SCK.CEN (BE) | CIRTEN (IT) | REC (SI) | Nidia (IT) |

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