



**of the European Atomic Energy Community (Euratom)  
for nuclear research and training activities (2007-2013)**

**Collaborative Project & Coordination and Support Action**

***TALISMAN***

Project title: **TALISMAN – Transnational Access to Large Infrastructure for a Safe Management of ActiNide**

Project number: **323300**

Project coordinator: **Commissariat à l'Énergie Atomique et aux Énergies Alternatives CEA, Paris, France**

HZDR participant: **Institute of Resource Ecology**

Starting date: **01.01.2013**

Duration (months): **36**

**Summary**

Safety issues are of fundamental importance for the acceptance and sustainable application of nuclear energy. Actinides play a central role in the nuclear fuel cycle from mining, fuel fabrication, energy production, up to treatment of used fuel by reprocessing, partitioning and transmutation and/or finally management and disposal of radioactive waste. A fundamental understanding of actinide properties and behaviour in fuel materials, during the separation processes and once in geological repository is an imperative prerequisite to tackle all the related safety issues.

Unravelling the complexity of the principal actinide components of used nuclear fuel certainly represents one of the grand challenges in nuclear science. In order to meet the needs of the safe and sustainable management of nuclear energy, it is therefore essential to maintain highest level of expertise in actinide sciences in Europe and to prepare the next generation of scientists and engineers who will contribute to develop safe actinide management strategies.

Because actinides are radioactive elements, their study requires specific tools and facilities that are only available to a limited extent in Europe. Only a few academic and research organisations have the capabilities and licenses to work on these elements under safe conditions. It is therefore strategic to coordinate the existing actinide infrastructures in Europe, and to strengthen the community of European scientists working on actinides.

In the continuation of ACTINET-6 and ACTINET-I3, TALISMAN will foster the networking between existing European infrastructures in actinide sciences open them widely to any European scientists by offering and supporting transnational access to unique facilities. To meet its objectives, TALISMAN will animate and organize a network of actinide facilities across the EU that will increase our knowledge for a safer management of actinides fostering training and education.