IAEA Network of Centres of Excellence

Technical Cooperation programme INT/9/173

Progress review in the Network project since the last Consultants’ Meeting (3-4 March 2008)
French legal context

The “Bataille” law (December 30, 1991) establishes Andra as a public organization in charge of radwaste management and defines 3 research areas:

- **PARTITIONING & TRANSMUTATION**
  Proposes solutions allowing partitioning and transmutation of radio-elements present in wastes

- **DEEP GEOLOGICAL DISPOSAL**
  Provides elements assessing the feasibility of a deep geological disposal for HLW & MLW

- **LONG TERM INTERIM STORAGE**
  Develops devices allowing safe long term interim storage for HLW & MLW

The Planning Act (June 28, 2006) relative to the long-term management of radioactive material and waste completes the 3 areas stated in the “Bataille” law:

- Reinforces the juridical framework organizing the waste management in creating the National Plan for Management of Radioactive Materials and Wastes
- Fixes schedule for radwaste management installations creation (surface repositories and geological disposal)
- States new taxes for financing radwaste management operations
- Reinforces Andra’s role and missions
Milestones of the geological disposal project
2009 - 2025

■ 2009: Location of the Restricted Area of Interest (30 km²)
■ 2013: Public debate (location, scientific questioning...)
■ 2013-2014: Application for repository construction (DAC)
■ 2015: Technical review of the Application (DAC)
■ 2016: New law on reversibility policies
■ 2016: Decree for the creation authorization
■ 2017-2024: Studies and construction
■ 2025: Commissioning, industrial startup
The role of IRSN in the French nuclear waste management

The safety of a deep geological disposal raises questions at the edge of the scientific knowledge imposing

The training of experts by Research

Public expert in charge of the scientific assessment related to nuclear and radiological risks
The Tournemire’s Underground Research Facility
**Research programmes**

*Disturbances induced by gallery excavation (EDZ characterisation by geophysical non destructive methods)*

*Transport properties of water and aqueous species (Hydraulic parameters, Natural tracers, RN retention)*

*Faults and fractures detection by geophysical methods (3D Seismic, Electric resistivity)*

*Disturbances induced by engineered barriers*
Research programmes

- Disturbances induced by engineered barriers
- Sealing system performance
- Argillite/concrete interaction
  - Boreholes and lab analyses
Argillite/concrete interaction - Boreholes and lab analyses
Large scale cylindrical cores

40 cm diameter
55 cm length
Sealing system performance

1- Normal conditions

- Evaluation of the influence of construction specifications
  - 3 configurations of construction joints

2- Altered conditions

- an incomplete saturation of the swelling clay core
- an incidental decrease of the swelling pressure in the swelling clay core
Boreholes from the New Gallery

60 cm diameter
IRSN’s public and scientific policies

Press and public visits of the Tournemire’s URF

Press Visit
September 2008

Public visit – September 2008
Web visit of the Tournemire’s URF with ROBOMIRE
Scientific visits of the Tournemire’s URF for students, national and international partnerships (Mont-Terri Project, IAEA)

New national partnerships: GNR TRASSE (CNRS - IRSN)