



PEBS Newsletter No. 4

This newsletter contains information on the REGULATORY AUTHORITY WORKSHOP proposed for April 25th and 26th 2012 and the BENTONITE WEEK at the BGR laboratories in Hannover and locations in Bavaria from October 8th to 11th 2012.

PEBS Workshop for Regulatory Authorities, preliminary programme

The workshop will be arranged as a closed workshop open only to experts of European/global regulatory authorities and their partners/contractors. The objective of the workshop is to present the current status on how processes in the early evolution may affect the long-term performance of the Engineered Barrier System (EBS) of a nuclear waste repository and how the activities within the PEBS project may reduce the uncertainties in the handling of these processes.

The programme will contain:

1. Introduction to the PEBS project: objective, partners, activities and expected impact.
2. Overview of the current treatment of the early

evolution of the EBS in safety assessments in a number of European national programmes. This includes the safety assessment methodology, the use of safety functions, the identification of important processes, assessment of the early evolution and the identification of key uncertainties. A plan for how the scientific work performed within PEBS will be used to reduce uncertainties in future assessments will also be presented.

3. The experimental work within PEBS. PEBS includes a large experimental programme at laboratory, mock-up and field scale. The work is focused on the H-M, THM and THMC couplings. This topic will consist of an overview of all experimental work within the project as well as two detailed presentations of specific experiments.
4. Model application and development within PEBS. The objective of the modelling is to perform coupled HM, THM, and THMC analyses to provide a sound basis for the interpretation of the various tests within the experimental programme. This also includes the development of new or improved models as demanded by the calibration

Programme of the Regulatory Authority Workshop

Wednesday, April 25th 2012

1. Registration 14:00 to 15:00
2. Field Trip Mont Terri URL 15:00 to 17:30

Thursday, April 26th 2012

3. Presentations and discussions
 - Welcome 08:30
 - General overview of the PEBS project, Michael Mente, BGR
 - Overview and current results of work package 1 (Analysis of system evolution during early post-closure period, Impact on long-term safety functions) and work package 4 (Analysis of impact on long term safety), Lawrence Johnsen, NAGRA or Patrick Sellin, SKB, Sweden
 - Overview of work package 2 (Experimentation on key EBS processes and parameters), Juan-Carlos Mayor, ENRESA
 - THM and THM-C laboratory experiments, Maria Victoria Villar, CIEMAT.
 - HE-E experiment (THM field experiments) Irina Gaus, NAGRA.
 - Overview of WP3 (Modelling of short-term effects and extrapolation to long-term evolution), Klaus Wiczorek, GRS
 - Coupled thermal-hydraulic-mechanical modelling of the bentonite buffer, Professor Antonio Gens, CIMNE, or Benoit Garitte, CIMNE.
 - Coupled thermal-hydraulic-chemical modelling taking into account (certain) mechanical effects, Professor Javier Samper, UDC.
 - End of Workshop 17:00

The workshop venue is the Mont Terri Project Information Center, St. Ursanne, Switzerland, about 50 km south west of City of Basel, see also:

http://www.mont-terri.ch/pdf/CCV_Werbeprospekt_2011_deutsch_web.pdf and <http://www.swisstopo.admin.ch/internet/swisstopo/de/home/topics/geology/MTProject.html>

BGR has pre-reserved 15 rooms at local hotels directly in St. Ursanne. Transfers from the Hotels to the URL will be arranged by PEBS. For more details please ask the coordinator Michael Mente (michael.mente@bgr.de) or call +49-511-643-2246

of computation results with the actual measured data, and use of the the data and improved models for extrapolation to long-term evolution of the repository. In the workshop an overview of the modelling will be given together with specific presentations on coupled thermal-hydraulic-mechanical modelling of the bentonite buffer and coupled thermal-hydraulic-chemical modelling taking into account (certain) mechanical effects.

5. Questions and discussion

PEBS Bentonite week

PEBS is offering a special laboratory training workshop on bentonites for HRLW disposal, and a related field trip to bentonite deposits and producers.

Objectives of training course and excursion

The Bentonite week is aimed at early-stage researchers as well as experienced scientists working for universities, implementers and regulators entering this research area with e.g. a. geomechanics or mineralogic background.

Background

Compacted bentonites are currently being investigated as a geotechnical barrier in high-level radioactive waste (HLRW) repositories due to their low permeability, high swelling pressure, and cation adsorption capacity. Bentonite properties vary significantly from one deposit to another

and even between different locations of a given deposit. During the training course in the lab both cutting edge and recently implemented methods for bentonite characterisation are presented. The theoretical background as well as training in the lab will cover the current industrial, environmental and economical demands of globally operating organizations.

Of special importance for future installations of final repositories will be an optimal specification of the bentonite raw material for the technical application which should also cover economical aspects.

The desired and required bentonite properties are diverse. Information about the relation between bentonite properties and performance is required to define reasonable bentonite specifications. The ideal HLRW bentonite, capable of rendering all problems negligible, has, however, yet to be identified.

At the end of the training course, the field observations, and the bentonite processing in the clay industry, an open discussion should resolve the questions of "what kind of quality parameters for bentonites are required?"

Content of next Newsletter

The following Newsletter will report on the Mont Terri Experiments. For more detailed information see the PEBS web site:

<http://www.pebs-eu.de>

Programme Bentonite Week

Monday, October 8th 2012, Workshop

Registration:	11:00 to 12:00	
Lunch:	12:00 to 12:30	
1. Presentation:	12:30 to 13:15	Bentonite Mineralogy
2. Presentation:	13:15 to 14:00	Bentonites BGR
3. Presentation:	14:30 to 15:45	CEC, LCD/IR/DTA
4. Presentation:	16:15 to 17:00	Rietveld
5. Presentation:	17:00 to 17:45	Quantification
6. Discussion	until 18:30	
End of Workshop	18:30	

Tuesday, October 9th 2012, Laboratory Course

1. Application:	08:30 to 09:15	XRD, Rietveld
2. Application:	09:15 to 10:00	CEC/LCD
3. Application:	10:30 to 12:00	IR/DTA – SEM
Lunch	12:00 to 13:00	
Discussion	13:00 to 14:30	Discussion: Which kinds of quality parameters are conceivable?
End of course	14:30	
Bus transfer to Bavaria	14:30 to 20:30	
Dinner	20:30 Hotel	Hotel "Hallertau", Wolnzach

Wednesday, October 10th 2012, Fieldtrip 1

1 st field trip	09:00 to 12:00	Open Bentonite mines, S&B Industrial Minerals, Hallertau
Lunch and transfer	12:00 to 13:30	
Bentonite plant tour	13:30 to 16:00	S&B Industrial Minerals, Landshut
Discussion	16:00 to 18:00	Discussion: What kinds of quality parameters are required?
Dinner	18:00	Typical Bavarian Restaurant

Thursday, October 11th 2012, Fieldtrip 2

Bentonite plant tour	09:00 to 11:00	Süd Chemie, Moosburg
End of Bentonite week	11:00	
Bus transfer to airports	11:00 Munich (11:30), Frankfurt (16:00), Hanover (20:00)	