

SARNET NEWS N°4

October 2005

MANAGEMENT

Administrative matters:

A contract amendment has been prepared, it contains:

- The update of the Joint Programme of Activities for the April 2005-September 2006 period,
- A modification or requirements regarding audit certificates (see joint document)

The latest cost statements (for SARNET first year) have been sent to the European Commission (EC) beginning of October. We are now waiting for the budget approval and for the further distribution of the grant by the EC.

The update of the Joint Programme of Activities is the so called JPA2 defining the activities for the April 2005- September 2006 period. Consistently with this update document and the decisions of the latest Governing Board meeting the appendices of the Consortium agreement have been updated. The corresponding documents are available on ACT.

SARNET follow up:

Following recommendations made by the experts nominated by the EC (J. Royen, K. Rahbar, G. Löwenhielm), the SARNET Management Team has elaborated an action plan.

One of the major recommendations is to initiate in the coming months a discussion on the follow-up of the NoE beyond the current contract (that is to say after March 2008). In order to prepare a discussion on this point during the forthcoming Governing Board meeting (Zürich, PSI, March 24th, 2006) a questionnaire has been prepared and distributed to all the partner organisations. The answers are to be sent to the Coordinator before January 15th, 2006.

Management Team:

The 4th Management Team meeting has been host by GRS (Garching) on September 22nd, 2005. The main discussions points were the:

- Elaboration of the above action plan
- Finalisation of ERMSAR 2005 (more than 150 participants are registered)
- Finalisation of the SARNET course to be hosted by CEA in January 2006 the programme is available on the public web site: www.sar-net.org, (EVENTS directory)
- Elaboration of a Quality Management System (QMS), the document will be finalized and distributed to the Governing Board Member for acceptance.

Advisory Committee:

EDF has prepared a proposal for the Advisory Committee, the proposal has been approved by the Governing Board (via mail), the first meeting of the Advisory Committee will be hosted by EDF on December 16th, 2005, in Chatou (Paris suburbs). Dr. Giovanni BRUNA (IRSN) has been appointed as member of this Committee.

ASTEC

IRSN-GRS delivered the latest version ASTEC V1.2 on a CD-ROM to all partners in the 3rd week of July 2005.

Two major deliverables (D30&31) will be finalized in the forthcoming weeks, they concern:

- The validation report of ASTEC V1.1,
- The synthesis of the benchmarking activity (code to code comparison for Westinghouse 1000, Konvoi 1300, PWR 900, VVER-1000, VVER-440/213 and PWR 1300 severe accident transients).

Besides the existing FoBAUs of Bulgarian users, a new Group of users was set up: SHAUG or Slovakian-Hungarian ASTEC Users Group. Intensive discussions took place within these groups and progress towards reference VVER input decks has been done.

PSA2 (level 2 Probabilistic Safety Assessment) ACTIVITIES

The third PSA2 meeting has been organized on the 28th and 29th of June 2005 in Varna (Bulgaria - TUS invitation). The general comparison of partners methods for level 2 PSA development have been finalized. The comparison of the main probabilistic software (EVNTRE, RISK SPECTRUM, KANT) has been initiated through a mobility programme (INR researcher stay in IRSN, EDF, GRS and VEIKI) . The document describing possible methods for uncertainty and sensitivity analysis in support to Level 2 PSA has been finalized and discussed during the Varna meeting.

In the frame of SARNET mobility programme, a LEI PhD student went to ULB to learnt about the Stimuli Driven Theory of Probabilistic Dynamics (SDTPD). Also, an ULB PhD student came in IRSN to learn about hydrogen distribution and combustion to in position to develop an application of SDTPD theory to a very simple and preliminary example on this subject.

An updated version of the comparison between results obtained with the Monte Carlo Dynamic Event Tree (MCDET) method and the classical method on a specific example has been provided by GRS. This comparison gives very good insights of the potential interest of this method.

A presentation ("SARNET Level 2 PSA Work Package: comparison of partners methods for uncertainties assessment") has been proposed and accepted for the Workshop on Evaluation of Uncertainties in relation to severe accident and level 2 PSA organized in November 7 to 9th 2005 by the OECD-NEA-CSNI in collaboration with IRSN.

CORIUM, CONTAINMENT and SOURCE TERM

Work has continued in the three areas following the lines set out in JPA2. Several technical seminars have been organized and several joint papers for ERMSAR conference are under preparation.

In the **Corium** domain, one may mention:

- The joint preparation of a special issue volume of Nuclear Engineering and Design (NED) on Particulate and Porous Debris Coolability.
- The joint publication of "Recursively Coupled Thermal and Mechanical FEM-Analysis of Lower Plenum Creep Failure Experiments by H.-G. Willschuetz, E. Altstadt, B. R. Sehgal, F.-P. Weiss" in Annals of Nuclear Energy.
- The VULCANO COMET experiment proposed by FZK has been selected in the frame of the CEA PLINIUS Transnational Access to Research Infrastructure FP5 project. The objective is to test with prototypic oxidic corium the COMET-PCA concept that has been developed at FZK. The test has been performed by CEA in October 2005. After pre test calculations, post test analyses and post test calculations with WABE will be jointly carried out by IKE and FZK.
- Topics relevant to core degradation and core quenching will be presented and discussed at the 11th International QUENCH Workshop, taking place during October 25-27 at FZK Karlsruhe.

In the **Containment domain**, one may mention:

- Concerning hydrogen combustion, new experiments have been performed in the ENACCEF facility. These experimental data will be made available by IRSN and used for a benchmark.
- Concerning Direct Containment Heating (DCH) FZK and IRSN have provided the report and the data of the DISCO-LACOMERA L1 test, for a code and model comparison to the participating partners (GRS, EdF and IRSN, who apply the codes CONTAIN, MAAP and ASTEC, respectively). The results will be compared in a workshop meeting taking place in December 2005. In October 2005 the second DISCO-LACOMERA test will be performed at FZK with the participation of a researcher from University Sofia (TUS), delegated under the SARNET Mobility plan.

In the **Source Term domain**, one may mention:

- A set of circle meetings have been held in conjunction with the PHEBUS FP project meetings, Aix-en-Provence, October 2005, at which technical material from the new International Source Term programme (ISTP) were presented for the first time. The PHEBUS, ISTP and SARNET meetings are being harmonised to take advantage of the overlapping programmes and to improve cooperation amongst the subject areas.
- Three papers were included in Nuclear Energy in New Europe conference, Bled, Slovenia, 5th-8th September 2005; with a poster and paper at the Spanish Nuclear Society Meeting, Logroño, Spain, 19th-21st October 2005; Seminar to be held at Newcastle University, UK, 15th December 2005 "SARNET: Integrating Severe Accident Safety Research in Europe"
- One staff secondment under the mobility programme has been prepared, that of an INR researcher to IRSN Cadarache, to use ICARE/CATHARE in support of air ingress studies (plant calculations and analysis of experiments); this work will be performed under WP14-1 and WP9.3. .
- Discussions have begun with Newcastle University (UK), experts in the aerosol physics field, on the possibility of their joining SARNET, and in particular WP15, for JPA3 and beyond. Their candidature was approved in principle by the SARNET management team in September, and negotiations will now proceed in more detail.
- New series of tests have been performed at VTT on Ruthenium transport; CEA has proposed one experiment on Ruthenium release in MERARG facility and EDF and CEA have proposed an iodine test in CAIMAN facility. The two latter have been presented for discussion amongst partners.

DATANET

Two new partners will contribute to the development of DATANET: CIEMAT and VTT. The AEKI database is now open: <http://nagy.aeki.kfki.hu>

EXCELLENCE SPREADING

The education and training activities are being spearheaded by development of a short course on Severe Accident Phenomenology (SAP) tailored for active researchers and students in Europe and other countries. The course will be given at Cadarache from January 9 to 13, 2006. The emphasis in this course will be on teaching and providing insights rather than information transfer. This course will include 3 hours of teaching on the topic of Safety Assessment with a short description of the PSA methodology.

The title of the book has been picked as "LWR Severe Accident Safety", which signifies that the focus is on Severe Accidents. A consensus has developed to orient the content of the book as a text book for students and young researchers in this field rather than to write a 'Source-book' with description of all research activities. A detailed outline of the various chapters in the book was developed and experts have agreed to contribute. Preliminary text for the book will be developed by the contributors as they participate as teachers in the course. Serious writing will be done in 2006. Prof. Sehgal will be the Editor of the book.

The Mobility Program accelerated starting with summer of 2005, when seven researchers headed for trainings of different durations ranging from few weeks to almost 1 year. The sending organizations have been CIEMAT (Spain), LEI (Lithuania), INR (Romania), ULB (Belgium), Demokritos (Greece) and TUS (Bulgaria) and the host organizations have been PSI (Switzerland), ULB (Belgium), IRSN (France), VTT (Finland), EDF (France), GRS (Germany) and FZK (Germany).

FUTURE EVENTS:

- ERMSAR 2005, 14-16 November 2005, Aix-en-Provence.
- Advisory Committee Meeting, December 16th, 2005, in Chatou (France, EDF)
- Education course on severe accident (for students and young researchers), January 9 to 13, 2006, in Cadarache.

- Annual review meeting of the Containment, Corium and Source Term areas, 30th January to 3rd February 2006, in Villigen (PSI)
- Management Team meeting N5 : March 2nd, 2006 in Ispra (JRC).
- Governing Board N3: March 24th, 2006, in Villigen (PSI).