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|  | EUROPEAN COMMISSION  DIRECTORATE-GENERAL ‘RESEARCH’ | INTERNATIONAL  SCIENCE AND  TECHNOLOGY  CENTRE |  |

**CONTACT EXPERT GROUP on SEVERE ACCIDENT MANAGEMENT (CEG-SAM)**

*To:* R. Burmanjer (EC, DG-RTD / D.3) *Advice no.:* A -16

*Project code:* ISTC # 3813 *Date:* 25th Sept. 2007

*Signatures:* P.Hofmann (Secretary)

*Linked meeting:*  12th CEG-SAM meeting, St. Petersburg, September 11-13th, 2007.

*Attending members:* Altstadt (FZD); Azarian, Fischer (AREVA); Bottomley (JRC/ITU); Cenerino, Clement (IRSN); Ducros, Journeau (CEA); Lamy (EdF); Güntay (PSI); Herranz (CIEMAT); Oriolo (Uni.Pisa); Miassoedov, Stuckert, W. Tromm (FZK); Krause (AECL); Trambauer, Allelein (GRS)

*Copies:*  CEG-SAM members; M. Hugon, J. Sanders (EC, DG-RTD / D.3), S. Webster (EC, DG-RTD / J.2), L.Tocheny (ISTC, Moscow)

\* Subject: - “Phase Diagrams for NPP Severe Accident Studies (PRECOS)”

\* EU Collaborators: - FZK, ITU, IRSN, CEA

\* Documents: - ISTC project proposal #3813; “Phase Diagrams for NPP Severe Accident Studies (PRECOS), Leading Institution: A. P. Alexandrov Institute of Technology (NITI), St. Petersburg

\* Advice: - **EU funding recommended with top priority**

\* Justification: - This project proposal will last for 3 years for a total cost of 995,610 US $. The proposal continues with the measurements carried out in the CORPHAD project (#1950.2) which has provided very valuable information on the high temperature phase diagrams of refractory systems found in the reactor core during degradation. This information is necessary for the accurate knowledge of material behaviour in both in-vessel and ex-vessel coria. PRECOS will be examining the particularly difficult systems such as viscous, high-Si content melts as well as completing poorly-characterised systems and finally examining anticipated ex-vessel coria for various reactor types. This data is also essential for a consistent and validated model, particularly when applied to ex-vessel melts with the highest number of components.

The group very strongly supports this project as the Alexandrov Institute of Technology (NITI) have shown themselves to be both competent and thorough in the execution of this very time-consuming and arduous work. It also requires very careful analysis of the phases to obtain the tie-line limits as accurately as possible and to check the existing data, but often to extend the very scarce data of these awkward systems. It therefore requires the cross-checking of the values by the use of several techniques to avoid errors.

Comments: It will provide qualified thermo-chemical data for the high temperature data banks (eg THERMODATA) which in turn will allow the improved modelling (eg NUCLEA2) of the material phases and melting points. CEA, IRSN will use this data directly during the course of the project to recalculate the phase diagrams to make a direct comparison of modelling versus experimental results. It will therefore be of direct relevance for the all reactor types (both Russian & Western Europe) and for all scenarios of severe accidents. It will also have links with the SARNET-corium and Plinius programmes and possibly with the proposed OECD-CORTRAN project.

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| Dissemination level : RE: restricted to EC, CEG-SAM members, ISTC and CIS beneficiaries |