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|  |  INTERNATIONALEUROPEAN COMMISSION SCIENCE AND DIRECTORATE-GENERAL 'Research' TECHNOLOGY CENTER |   |

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

*To:* B. Rhode (EC, DG RTD N-3) *Advice no.:* A-081

*Project code:* # 3194 *Date:* 23rd March 2005

*Signatures:* M. Hugon (Chairman) and P.Hofmann (Secretary)

*Linked meeting:*  CEG-SAM meeting. Cologne, 28th February- 1st March 2005.

*Attending members:*  Adroguer (IRSN); Allelein (GRS); Altstadt (FZR); Azarian (Framatome-ANP); Bottomley (JRC/ITU); Journeau (CEA); Koch (RUB), Marguet (EDF), Oriolo (University. Pisa),

Stuckert, Tromm (FZK);

*Copies:*  CEG-SAM members; L. Samaniego (EC, DG RTD N-3), H. Forsström (EC, DG RTD J-4), L.Tocheny (ISTC, Moscow)

\* Subject: - Proposal of “Fuel assembly tests under Severe Accident Conditions” - ISTC Project # 3194 (PARAMETER Facility)

\* EU Collaborators: - IRSN, EDF, FZK, Framatome-ANP, GRS.

 - Confirmation of new collaborators is on going.

\* Documents: - Revised Work Plan of project #3194. “Fuel assembly tests under Severe Accident Conditions”. Revised parts version beginning 2005. Federal State Unitary Enterprise Scientific Research Institute Scientific Industrial Association “LUCH”, Podolsk, Russian Federation.

\* Advice: - **EU funding recommended (priority 1)**

\* Justification: - The group strongly supports the execution of this project aimed at investigating the degradation and the final flooding of VVER-1000 fuel rod under Severe Accident (SA) conditions. The project involves two large-scale experiments in the PARAMETER facility in “unique prototypical conditions” regarding the fuel rod bundles (UO2 pellets, rod length) and boundary conditions (top and combined top-bottom flooding). This project has attracted high interest of the CEG-SAM members, including those from industry because the flooding of a severely degraded core is a safety-relevant issue for which there is a lack of knowledge regarding the hydrogen production “during top flooding conditions” and related thermal-hydraulic conditions in the primary circuit that can favour fission product retention. Moreover the top flooding front progression, the related core degradation and its oxidation are important aspects for which there exist no correct models for both VVER and PWR fuel rods (PWR rods are believed to have similar behaviours as VVERs). Of particular interest are the suitable on-line measurements and post-test analysis possibilities that should facilitate understanding of the results as well as improvements of Russian and Western SA computer codes presently used for safety evaluations. The project should promote benchmarks either with QUENCH experiments carried out by FZK in different conditions or between different Russian and Western SA codes, in particular the European ASTEC code that is under improvement and validation also for VVER designs within the SARNET SA Network of Excellence.

\* Recommendations: - Previous recommendations have been incorporated

\* Comments: - This project will have close links to the EU SARNET Network of Excellence (FP6) and to the German QUENCH Program

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