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|  | EUROPEAN COMMISSIONDIRECTORATE-GENERAL ‘RESEARCH’ | INTERNATIONALSCIENCE ANDTECHNOLOGYCENTRE |  |

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

*To:* R. Burmanjer (EC, DG-RTD / D.3) *Advice no.:* A -13

*Project code:* ISTC # 3702 *Date:* 23rd March 2007

*Signatures:* P.Hofmann (Secretary)

*Linked meeting:*  11th CEG-SAM meeting, Dresden, Germany, March 7-9, 2007.

*Attending members:* Altstadt, Willschütz (FZD); Azarian, Nie (AREVA); Bottomley (JRC/ITU); Cenerino, Clement (IRSN); Ducros, Journeau (CEA); Dutheillet (EdF); Güntay (PSI); Herranz (CIEMAT); Koch (RUB); Miassoedov, Stuckert, W. Tromm (FZK); Krause (AECL); Trambauer (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: - “Long-term behaviour of corium after the accident –using the data of the Chernobyl accident- (CHESS-2)"

\* EU Collaborators: - ITU, CEA, GRS and probably IRSN & other organisations

\* Documents: -ISTC project proposal #3702;”The Long-Term Stability of Chernobyl Corium/lava”, (Version March 2007), Leading Institution: RRC-KI, Moscow

\* Advice: - **EU funding recommended with Priority 1**

\* Justification: - This project proposal will last for 30 months for a total cost of 345,000 US$. This proposal has extends the work of the CHESS-1 project (#2916) where the lava distribution during the first 10 hours was examined and modelled. This project examines the degradation processes of the Fuel-Containing Material (FCM) and dust generation from 10 hours to 100 years.

The tasks will involve collecting chemical & physical properties of the Chernobyl lavas, and assessing the influence of Shelter's heat & humidity on the FCM degradation. The results of available long-term experimental testing and simulant waste weathering data will also be assessed; then a model will be created to predict its long-term behaviour. The model will be used to estimate the source term form with time and assess the future risks.

The modelling of the dust generation will be done together with a parallel project supported by STCU, Kiev. The parallel project will be carried out by the Ukrainian Inst. for Agricultural Radiology (UIAR) and will examine the long-term behaviour of Chernobyl hot particles (HPs). This project examines the dust generation from HPs (small fuel and corium particles).

The final combined model will describe the stability and generation of dust from all sources and should therefore enable the long-term particle & activity distribution in the Shelter to be predicted from the initial distribution of fuel particles and corium masses in the reactor hall.

This is a vital prerequisite for 1) any safety assessment of the Shelter 2) any intervention within the Shelter in the future -either to remove material or repair/disassemble the reactor structure.

It is intended that the two projects shall have joint progress meetings and that reports shall be mutually available and that a single combined model be created in the final (joint) Task.

The CEG-SAM believes this arrangement will both optimise the projects and bring together combined expertise of both countries as well as maximising the database for the model.

The Committee also feels that this project is of truly international importance and will be an extremely valuable investment for any future action undertaken at the Shelter (e.g. Shelter Implementation Plan), and will be more important with time. It is also a unique database to assess the long-term behaviour of corium, should a core-catcher function in a Gen III reactor.

\* Comments: - This project will also collect together the huge and invaluable long term data on the weathering and leaching of spent fuel that will available to both the European Union as well as Russia, Ukraine and Eastern Europe.

- The project will also have links to the SARNET programme where the work will be of great interest to the Molten Concrete-Core Interaction (MCCI) work in the Corium topic.

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