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

**CONTACT EXPERT GROUP on CORIUM MANAGEMENT**

**(CEG-CM)**

**MINUTES OF THE 1st MEETING**

**European Commission, Brussels, 26th April 2002**

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| Dissemination level : RE  PU: public  RE: restricted to EC and a group specified by the CEG-CM members  CO: confidential, only for EC and CEG-CM members |

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| Subject: Constitutive meeting of the  ‘Contact Expert Group on Corium Management’ (CEG-CM)  Place: Headquarters of EC / R&D, Brussels  Date: 26 April 2002  Participants: 17 participants of 12 organisations from 5 countries:  Mr. B.Adroguer IRSN, Cadarache  Mr. H.-J.Allelein GRS, Köln  Mr. E.Altstadt FZR, Rossendorf  Mrs. M.Augliere Tractebel, Brussels  Mr. G.Azarian Framatome ANP, Paris  Mr. G.Cognet CEA/DEN/DSNI, Saclay  Mr. P.Hofmann Consultant  Mr. U.Krugmann Framatome ANP, Erlangen  Mr. S.Marguet EDF, Clamart  Mr. A.Miassoedov FZK, Karlsruhe  Mr. L.Tocheny ISTC, Moscow  Mr. W.Tromm FZK, Karlsruhe  Mr. H.Unger RUB, Bochum  Mr. P.Bottomley JRC / ITU  Mr. D.Gambier DG-Research / 05  Mr. J.Karjala „  Mr. A.Zurita DG-Research / J.4  Distribution list: Mr. A.Mitsos DG-Research  Mr. P.Fernández Ruiz DG-Research / J  Mr. H.Forsström DG-Research / J.4  Mr. L.Bellemin DG-Research / 05  Mr. D.Taylor DG-TREN / C.4  Mr. R.Schenkel JRC  Intranet of Unit J.4  Participants  Contact person: Mr. A.Zurita Tel. : 58365 – MO75, 5/30 |

**1. Introduction**

D. Gambier (EC) opened the meeting and welcomed the participants of the kick-off or constitutive meeting of the International Science and Technology Center - Contact Expert Group on Corium Management (CEG-CM), according to the agenda [see annex 1]. He also described briefly the ISTC Programme, its objectives, composition and the organisation of the CEG on CM.

The ISTC is an intergovernmental organisation established in 1992 by agreement between the European Union, Japan, Russian Federation, and United States of America to promote the non-proliferation of weapons technology of mass destruction.

The objectives of the ISTC are:

* to provide scientists and engineers of mass destruction weapons or missile delivery systems of the Commonwealth of Independent States (CIS) opportunities to redirect their talents to peaceful activities,
* to support basic and applied research and technology development,
* to contribute to solving national and international technical problems,
* to encourage the integration of CIS weapons scientists into the international scientific community, and
* to support the transition to market-based economies.

##### 2. CEG-CM Guidelines

In this context, the CEG-CM guidelines were presented [see annex 2] and discussed. The main interest of the CEG on CM, lies within the research area of severe reactor accidents in the specific field of physico-chemical behaviour of liquefied and/or molten core materials, the so-called corium (i.e. corium formation, transport and retention; corium management) and its interaction with structure materials (RPV steel, basemat specific materials for core catchers).

###### Objectives

The objectives of the CEG-CM are in compliance with ISTC objectives and according to the guidelines:

#### -to evaluate and prioritise project proposals,

#### -to monitor on-going projects, and

#### -to review and assess final reports.

On this basis the CEG-CM will make further recommendations to the financing party EU:

* to foster exchange of information between ISTC projects and other related projects in the same field, e.g. Euratom Framework Programmes, in order to facilitate cross-fertilisation among them, to support international co-operation and dissemination, and to get mutual benefit from experience of project implementation as well;
* to check the projects’ real progress avoiding duplication, identifying potential gaps or new projects and promoting proposals that would contribute to improve the Corium Management knowledge and its applications; and
* to promote possibilities of joint industrial applications of R&D results, as well as of future joint research in the frame of the ISTC Agreement, in particular through the ISTC partnering scheme. In this context, an exchange of information on programs and projects carried out by the CEG-CM members will be sought.

As expressed by D. Gambier, the objective of the kick-off meeting should be to bring together European experts in the above mentioned field conducting research work within the 5th Framework Programme with Russian experts to discuss the guidelines of the CEG on CM and to select ISTC projects of joint interest. The selected projects should have as prime objective the improved understanding of CM phenomena and its applications. In addition, the joint activities should contribute to the “European Community added value” to on-going projects within the 5th Framework Programme and future projects within EURATOM Framework Programs and to maximise the mutual benefit to both parties. It is important to develop a common understanding of specific severe accident phenomena in order to optimise practical CM measures.

Direct financing of ISTC projects by CEG-CM members is possible.

###### Organisation

The CEG-CM normally meets in two distinct sessions, extended and restricted ones:

* In its “restricted session”, where only members of the CEG-CM are invited, the CEG-CM conducts its business to prepare its report to the Party (EU);
* In its “extended session”, the CEG-CM chair invites representatives of ISTC projects and/or proposals. This session is devoted to presentations of project results or of proposals. Extended sessions are co-chaired by a representative of ISTC projects or proposals.

It is also possible to invite organisations from other non-European countries which act as collaborators.

* CEG-CM meetings will be held at least once a year alternatively in one of the beneficiary countries and in one of the Party organisations. The maximum duration of each meeting is 2 days.

###### Composition of the CEG-CM

The composition of the CEG on CM will consist of a chairman, a co-chairman and a secretary. Further representatives will come from the various EC General Directorates involved in Corium Management issues, one or two representatives of each organisation of the Party interested in ISTC projects on Corium Management, one or two representatives of the ISTC Secretariat; and other experts upon invitation by CEG-CM.

At the end of the discussion and the approval of the guidelines of the CEG-CM D. Gambier suggested electing Dr. Alejandro Zurita as chairman and Dr. Peter Hofmann as Secretary of the CEG on CM. Both were elected unanimously by the group. Prof. Lev Tocheny of the University of Moscow was nominated as co-chairman. A. Zurita and P. Hofmann expressed their thanks to the members of the group for their election. A. Zurita chaired then the meeting further to discuss the list of CM-related ISTC projects and elaborated the interest of the various EC organisations in the different projects.

##### 3. ISTC Projects related to CEG-CM

A list of CM-related ISTC projects, as well as short descriptions were distributed and briefly discussed. That list was updated [see annex 3] and the interest of the different EC organisations in various ISTC projects was elaborated.

Some of them (noted 8) are completed, final reports are available.

A list of further “promising research abstracts” (PRA) is given but not discussed at this meeting; they should be discussed at the next meeting.

*CEA / DEN, G. Cognet*

CEA has been involved within several ISTC projects and is presently involved, as foreign collaborator, in the CORPHAD project (1950).As regards the current or future projects, CEA is interested in the ISTC Project 0833.2 if it is revised to take into account the results recently obtained in the OECD MASCA experiments. Regarding the completed projects, CEA is interested in the final report of the 0425 (Zirconium Ceramics for Nuclear Reactor) Project.

*EDF, S. Marguet*

Against financing ISTC projects related to the development of core catchers.

*Framatome ANP SAS, G. Azarian*

Interested in the ISTC Project 1648.

*Framatome ANP GmbH, U. Krugmann*

Involved as member of the steering committee/collaborator of/in the ISTC Projects 0064, 0425 and 1950 and in the assessment of the ISTC Project proposal 1974. The project proposal 1974 (Brickwork materials for operational and new NPPs) gives the impression that it is correlated to the EPR development which is actually not the case; Framatome ANP did not support the proposal, mainly due to the following reasons: technically not interesting and bad experience with the management and the performance of the ISTC Project 0425 with the same responsible people (Prof. Akopov and Prof. Mineev).

*FZK / IKET, W. Tromm*

FZK/IKET is working as foreign collaborator in the ISTC Projects 0833 and 0833.2 (METCOR) as well as in 1950 (CORPHAD). Interested in the final report of the ISTC Project 2107 and on all available information of the project 2219 (Steam Explosion).

*FZK / IMF, A. Miassoedov*

FZK/IMF is connected with the ISTC Project 1648 (VVER fuel behaviour under quench conditions) as foreign collaborator. The out-of-pile experiments with VVER fuel rod bundle simulators will be conducted in the FZK QUENCH Facility in Karlsruhe, Germany The Project was extensively discussed by the European experts during the meetings of the COLOSS Project and has awakened a strong interest of the European experts. One of the main recommendations was to concentrate the main efforts of the Project on a restricted amount of tests related to processes with the largest uncertainties

FZK/IMF is also interested in the final report of the ISTC Project 2107 and on all available information of the project 2219 (Steam Explosion).

*GRS, H.-J. Allelein*

Interested in the final report of the ISTC Project 0064 (Concrete Protection of Reactors) and on all available information of the ISTC Project 2219 (Steam Explosion).

*IRSN, B. Adroguer (including presentation)*

The ISTC Project 1648 (VVER fuel behaviour under quench conditions) has been discussed within the COLOSS project (5th FP, co-ordinated by IRSN and other partners preparing a large scale PHEBUS experiment) in order to submit an improved version. The recommendation is to focus more on quench effects (hydrogen production and volatile fission product release) using high burn-up fuel and to reinforce the related modelling and validation work.

The ISTC Project 1950 (CORPHAD) is complementary to the ENTHALPY project (5th FP, co-ordinated by IRSN). IRSN has already submitted recommendations on the test matrix. The results will be of interest for the validation and improvement of the European Nuclear Thermodynamic Database (NTD) developed in ENTHALPY.

Further interest exists in the ISTC Projects 0833.2, 0860, 2107 (final report) and 2219, however, the currently available information on these projects are not sufficient to come to a final conclusion.

*JRC / ITU, D. Bottomley (including presentation)*

JRC/ITU is involved in the ISTC Projects 0833 and 833.2 (METCOR) and 1950 (CORPHAD) as foreign collaborator and as member of the steering committee and acts as advisor for the ISTC Project 1648. Interested in the final report of the ISTC Project 2107.

*Tractebel, M. Auglaire*

Interested in the ISTC Projects 0833 and 0939.

Due to lack of time the distributed ‘Promising Research Abstracts’ (PRA) could not be considered, however they will be discussed in the next meeting of the CEG-CM.

# 4. Pending Actions

The following actions concerning the various ISTC projects have been decided:

#0064 distribution of final report to GRS J.Karjala

#0425 distribution of final report (if available?) to all members J.Karjala

#0833 distribution of summary final report to everybody J.Karjala

#0833.2 see specific procedure:

**>**Distribution of the currently available information of the METCOR Project phase 2 by J. Karjala and P. Hofmann.

**>**D. Bottomley and W. Tromm will prepare a modified version of METCOR in co-operation with Prof. Khabensky and Dr. Bechta taking in account the first comments of the group members.

**>**Renewed distribution of the modified version of METCOR phase 2 and collection of additional comments to Messrs. Hofmann and Zurita by June 10th, 2002 at the latest.

**>**CEG-CM advice / recommendations should be sent to the financing party EU by Messrs. Hofmann and Zurita at the latest by June 12th, 2002.

#1648 checking of the status L.Tocheny

(meanwhile work plan received and to be distributed to all members)

#1950 distribution of interim reports M.Fischer

#2107 distribution of proposal to all members J.Karjala

#2219 distribution of proposal to all members L.Tocheny

There was no interest shown by the group for the ISTC projects #0860, #0939 and #1974 at this time. The distribution of e-documents will normally go through the CEG-CM secretary.

##### 5. Other issues

Since some of the CEG-CM members are also members of specific steering committees, minutes of steering committees related to CEG-CM projects will be also send to the CEG-CM secretary.

A few non-CIS eastern countries (for example Hungary) are interested to join the CEG-CM. It was agreed after short discussion to accept them in the group as observers.

Organisations interested to act as external collaborators/monitors to specific projects should contact ISTC (Mr. L. Tocheny).

Not all members of the group were very familiar with the various ISTC Projects.

### Due to the limited time it was not possible to discuss the topics of the agenda ‘National Programs’ and ‘EC Corium Programs’ with various planned presentations.

##### 6. Next Meeting

The next meeting of the ISTC CEG-CM will take place in Karlsruhe, Germany on 1-2 October 2002. It will be organised by FZK (W. Tromm and A. Miassoedov) and JRC / ITU (D. Bottomley).

In order to obtain more information on the ISTC Projects 0833.2, 1648 and 2219 Russian colleagues will be invited to present their proposals, as well as the project status.

A. Zurita (Chairman) P.Hofmann (Secretary)

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##### Annexes

1. Agenda of the meeting
2. Guidelines of the ‘Contact Expert Group’ for projects on ‘Corium Management’
3. List of ISTC projects related to CEG-CM