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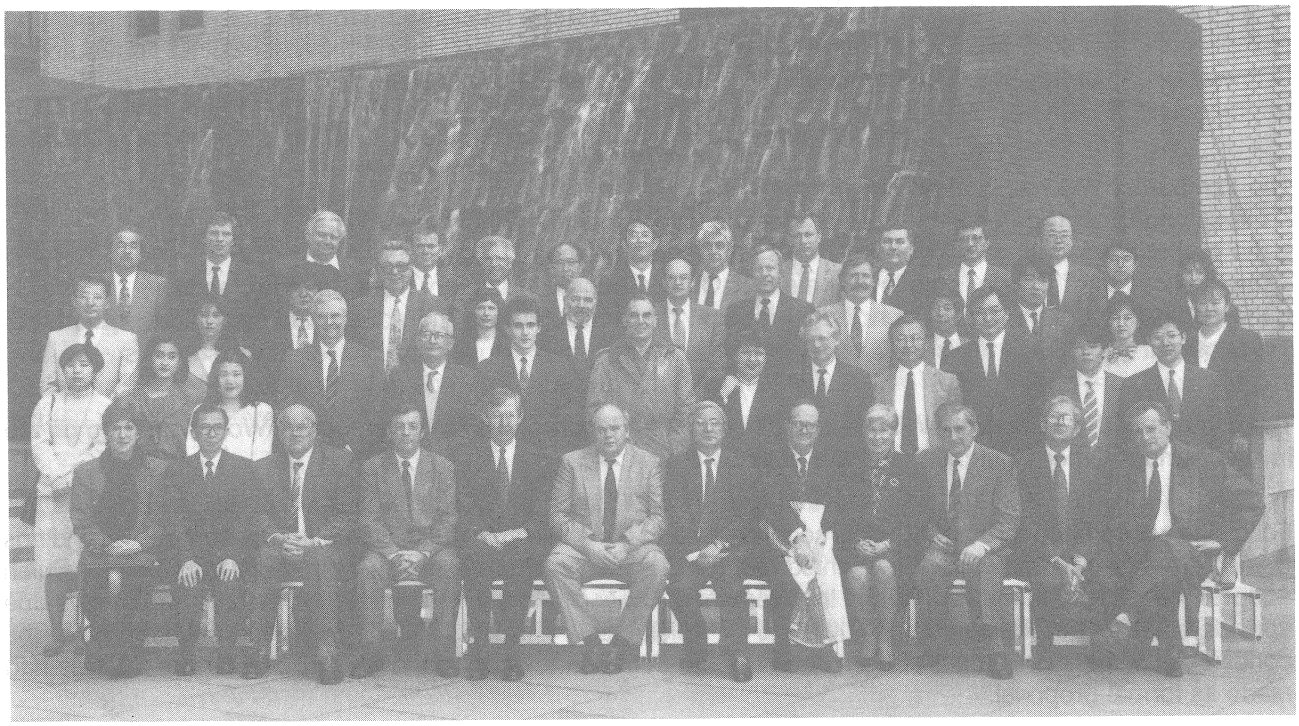
THIRD ITER COUNCIL MEETING IN TOKYO

by Dr. M. Yoshikawa, ITER Council Co-Chairman

The third meeting of the ITER Council was held in Tokyo on April 21 and 22, 1993. All members of the Council from the four Parties were present and the total number of attendees including experts was 41.

The status of the activities of the Joint Central Team (JCT) at the three Co-Centres was reported by the Director, Dr. P.-H. Rebut. Regarding the buildup of the JCT, the Council asked the Director to continue to report on the planned progress toward the approved JCT staffing and also invited the Director to consult with the Parties on ways to enhance the process of overall selection of JCT personnel.

A preliminary report of the outline design of ITER which the Director has been asked at the first meeting of the Council to submit to the Council was presented by the Director. The Council invited the Director to make all efforts to streamline the preliminary design so as to confirm for the next Council meeting its ability to satisfy simultaneously the three conditions on cost, technical objectives and safety margins defined by the Council. In the complex problem area of first wall, blanket/shield, structure and coolant, the Council considers that the JCT should continue to evaluate a broad range of options with the aim of respecting the cost limitations. The result of the further work on the outline design will be assessed by TAC in September.



Participants of the Third ITER Council Meeting, Tokyo

The Council accepted the draft Protocol 2 prepared and reported by Special Working Group 2 for submitting to authorities with a view to negotiating and concluding it as soon as possible.

The Council decided that a Joint fund be established and that provisions be considered annually. The Director will propose financial rules for the Joint Fund. The Council decided to request the IAEA to proceed with the arrangement previously negotiated with IAEA staff.

The Council approved the involvement of Canada in the EC contribution to the ITER EDA. Canada had been involved in the EC contribution to the ITER CDA.

The Council approved the assignments for the initial R&D tasks proposed by the Director and also agreed that the Director should meet with the Home Team Leaders to review the 1993 R&D programmes to determine the amount of R&D credit to be allocated.

The Council approved the MAC recommendation on the Visiting Home Team Personnel (VHTP) as an additional scheme to second people to the JCT.

The meeting was chaired by the Chairman, Acad. E.P. Velikhov, and the Co-Chairman, Dr. M. Yoshikawa, in a constructive and friendly atmosphere. The full bloom of the cherry blossom had passed a little before the meeting, but the attendees enjoyed comfortable spring weather in Tokyo.

The next meeting will be held in San Diego from September 29 to October 1.

INVOLVEMENT OF OTHER COUNTRIES

by Dr. E. Canobbio, MAC Member

The involvement of Other Countries has been addressed by a Temporary Working Group (WG) established by the MAC at its first meeting (1 - 3 December 1992, Naka Co-Centre). The Temporary WG has been charged to understand and propose the conditions for the involvement of Other Countries in the ITER EDA as provided for by Article 19 of the ITER EDA Agreement, paying particular attention to issues such as intellectual property rights. The Temporary WG was composed of two co-ordinators identified by the MAC, E. Canobbio and L. Golubchikov, two MAC Members, and experts for legal issues identified by each Party: EC: L. Ferrão and J. Grunwald; JA: S. Aoyama and T. Ide; RF: Yu. Balasanov and A. Mostovets; US: L. Howe and M. Roberts (representing T. James).

The Temporary WG has worked on
- the setting-up of the general framework for the involvement of Other Countries;
- the proposal on Canada's involvement, as anticipated by the EC side;
- the implication of the possible involvement of Other Countries (different from Canada); and
- the compilation of the ITER Council decisions on the involvement of individuals and institutions from Other Countries.

The findings of the Temporary WG are contained in the "Report of the MAC Temporary Working Group on the Involvement of Other Countries" and are outlined below.

Following acceptance by the MAC at its second meeting (24 - 26 March 1993, Garching Co-Centre), the findings of the Temporary WG have been presented to the ITER Council (3rd meeting: 21 - 22 April 1993, Tokyo) which adopted the general framework for the involvement of Other Countries, recommended that the Parties give due consideration to this framework in their use of Article 19 of the ITER EDA Agreement, and approved the conditions for the involvement of Canada in the Euratom contribution to the ITER EDA after the EC side had made its formal proposal.

OUTLINE OF THE REPORT BY THE MAC TEMPORARY WORKING GROUP

General Framework for the Involvement of Other Countries

Article 19 of the ITER EDA Agreement - Participation of other countries

(1) In its contribution to the implementation of this Agreement, its Annexes and Protocols, each Party may involve other countries which possess relevant specific capabilities.

(2) The conditions of such an involvement shall be compatible with the provisions of this Agreement, its Annexes and the relevant Protocol and shall be subject to the approval of the Council.

In applying Article 19 the Parties and the Council should give due consideration to the following elements:

1. Given the quadripartite nature of the ITER EDA Agreement and the principle of equality of the Parties, the provisions of Article 19 should be construed narrowly. These provisions are intended to pertain to those Other Countries applying during Protocol 1. If Other Countries would apply during Protocol 2 their involvement and their involvement conditions could exceptionally be considered.

2. Preferential consideration may be given to proposals concerning the involvement of those Other Countries whose relevant institutions have been involved in the ITER CDA, provided they have maintained a high level of relevant specific capabilities.

3. The scope of intellectual property rights granted to an involved Other Country should be commensurate with the scope of its contribution. Without prejudice to the full applicability of Annex C to the ITER EDA Agreement in respect of the allocation of rights, title and interests in and to intellectual property created without the participation of the involved Other Country or its personnel, this principle should be reflected (as laid down in detail in the Temporary WG Report) in the relevant bilateral arrangement between the involving Party and the involved Other Country.

Proposal on Canada's involvement

Discussions are under way between Canada and the EC to conclude an arrangement on the involvement of Canada in the Euratom contribution to the ITER EDA under the general framework of the Memorandum of Understanding for co-operation between the EC and the government of Canada in the field of controlled nuclear fusion. It is expected that Canada's involvement in the EC contribution to the resources that the four Parties have agreed to make available on an equal basis for the implementation of the ITER EDA Agreement will consist of up to about $CAN 4 millions a year in terms of ITER tasks (Design and Technology R&D) and of up to about 5 professionals as part of the EC contingent to the Joint Central Team.

As noted by the MAC in its Report presented at the second ITER Council meeting, the EC proposal to involve Canada through Euratom is appropriate in terms of Canada's fusion research capabilities.

Following endorsement by the ITER Council of the MAC recommendation to approve Canada's involvement and before formally submitting the involvement proposal to the ITER Council, the EC side informed the Canadian side of the content of the general framework for involvement in the ITER EDA and the Canadian side agreed with it at referendum.

Other Countries possibly joining the ITER EDA (different from Canada)

Expressions of interest to become involved in the ITER EDA in a way or another have been received by several of the ITER Parties from individuals, institutions or governmental bodies of Other Countries, other than Canada. However, so far no formal request has been sent by the government of any such Other Country to any Party.

Understanding on the Involvement of Individuals and Institutions from Other Countries

Interpretation of Article 19.

The involvement of individual scientists and engineers in the execution of the work of one of the Parties does not constitute involvement of an "Other Country".

Procedure governing the involvement of institutions from third countries other than those participating pursuant to Article 19:

1. Subject to the procedure set out hereinafter, a Home Team may, in exceptional cases, assign the execution of specific work to institutions which possess outstanding capabilities and are established in third countries other than those participating pursuant to Article 19 of the ITER EDA Agreement.

2. The request for such an involvement shall be submitted by the Home Team Leader responsible for the execution of the work to the Director for approval;

3. The involvement of the institution and the conditions of such an involvement shall be compatible with the provisions of the ITER EDA Agreement, its Annexes and the relevant Protocols and shall be subject to the agreement of the Council.

SUPERCONDUCTING COILS AND STRUCTURES DIVISION MOVES FORWARD

by C.W. Bushnell, Superconducting Coils and Structures Division

At the March meeting of MAC and the April meeting of the ITER Council, approval was given to proceed with Task Agreements which allow major steps to be taken in the R&D programme of the Superconducting Coils and Structures Division. These agreements, following earlier action, mark the Division as the first to have major Task Agreements "in the field".

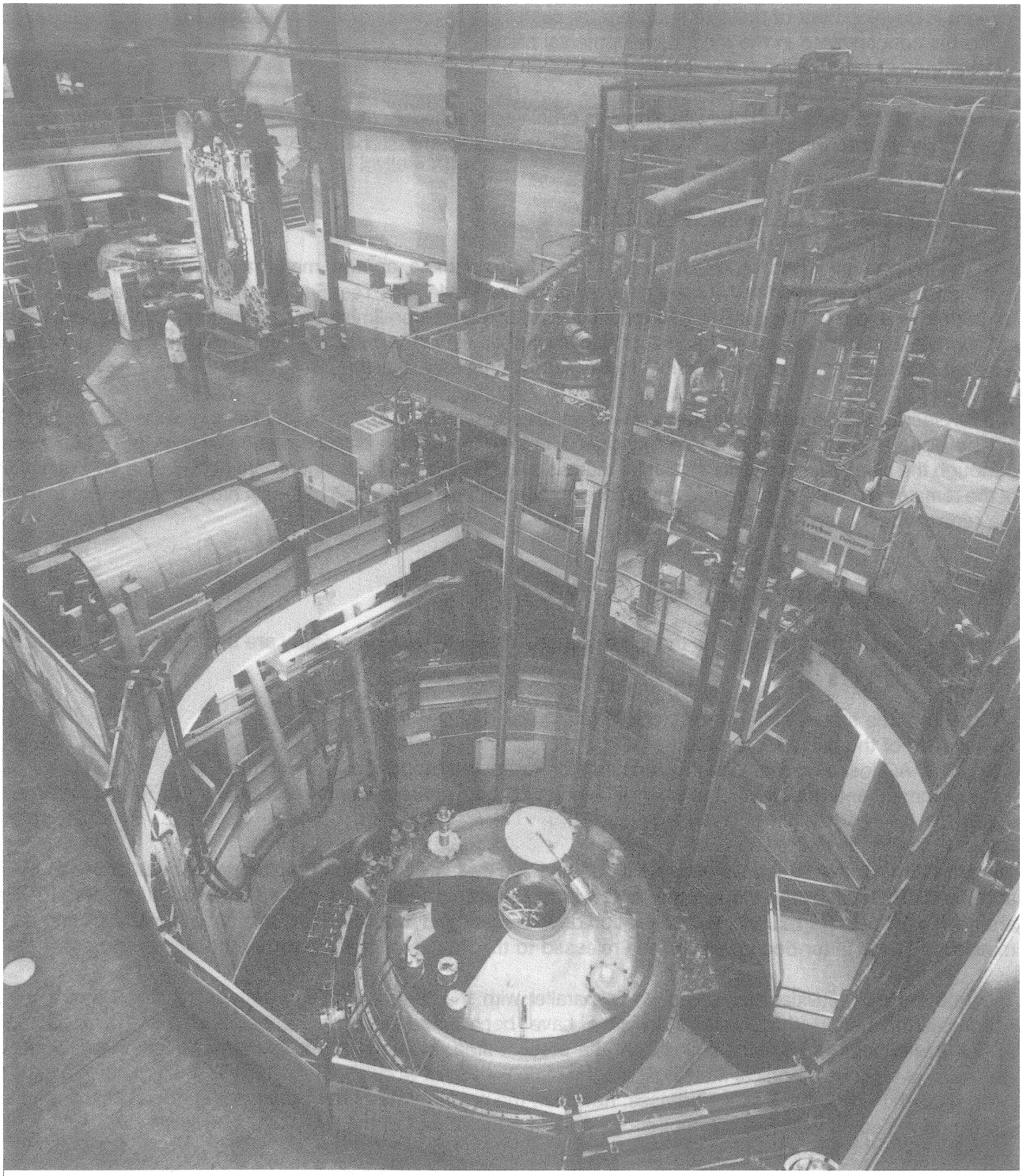
Manufacturing Feasibility Studies

Late last fall, both MAC had recommended and the ITER Council had approved the placement of Manufacturing Feasibility Studies of the toroidal field (TF) coil and central solenoid (CS) design concepts. These are aimed at evaluating the feasibility of manufacturing the coils, providing suggestions to guide the design, giving insight into the direction of the R&D programme, and providing the first round information for a costing effort. Each of the four Parties are participating equally in a programme that solicited industry involvement. At this time, eight industrial firms are active and continuing activities are foreseen as the design of the magnet system develops.

Procurement of Superconducting Strand for the Model Coils

More recent actions of MAC and the ITER Council included the approval to proceed with the Task Agreements necessary for the procurement of about 26 tons of Nb_3Sn superconducting strand, the "cornerstone" effort of the Division's R&D programme. The material produced will be used in the production of model coils, an important step in demonstrating manufacturability, but the primary function of this procurement is to establish reliable and proven industrial sources for superconducting strand for the full scale magnets. The full scale coils will require approximately 1300 tons of strand; therefore, a broad manufacturing base should be developed to support the future construction decision.

The programme began last year with the development of a superconducting strand specification which was approved at the January 1993 Magnet Meeting. Proposals to these specifications, made by industrial firms from around the world, were submitted to the four Parties, then reviewed by the Parties and a JCT Evaluation



"TOSKA" Facility at Kernforschungszentrum Karlsruhe (KfK)

Committee early in March. The final recommendation by the panel to the ITER Director which has been initially approved, results in all partners producing strand for the model coils. The approach has the following features:

- All Parties share in the development
- There is development of multiple suppliers for each type of conductor
- Effort is concentrated in the most developmental areas
- Development includes both the required internal tin and bronze techniques for conductor production.

Approval of this activity in a timely fashion was crucial to a schedule that calls for the construction and test of model coils prior to the projected "Approval for Construction" milestone in 1998.

Preparation of TF and CS Model Coil Test Facilities

With the initial steps taken to provide material for the programme, another major milestone has been crossed in the approval to proceed with Task Agreements for the Model Coil Test Facilities. Early this year, concepts for both a TF and a CS Model Coil had reached the stage where preliminary specifications for the provision of appropriate test facilities could be written and evaluated. Evaluation of the proposals that were generated resulted in the selection of the "TOSKA" facility at KfK Karlsruhe and a facility at JAERI.

The KfK facility is essentially complete and will be used to test the TF Model Coil. Testing of the CS Model Coil will be done at a completely new facility that is in the final stages of construction at the JAERI Naka site. Although the sites are essentially available, there is still a large amount of work to be done in the co-ordination of the remaining activities to provide the necessary control, instrumentation and data handling functions to meet the required test programme.

Other Division Activities

Many new Task Agreements are in the initial stages. Presently with each Party are the following Requests for Task Proposals (RFTPs):

- Cabling of the strand material for Model Coils
- Jacketing of the cable for the Model Coils
- Stability, AC loss and ramp rate experiments on prototype Model Coil conductors
- Development and qualification of layer to layer joints, both sub-scale and full scale, for the TF and CS Model Coils.

The plan is to receive the above proposals during June, evaluate them and prepare recommendations to MAC and the ITER Council over the summer and, with approval, to begin work in the fall. In addition, draft RFTPs are now in process for material test, insulation development and irradiation and test of both metallics and non-metallics. These latter documents will be released to the Parties over the summer for their proposals.

The above R&D activities are going on in parallel with the "normal" design activities in the Division. To accomplish this effort, the Division's activities have been broken into three principal areas: 1) Conductors, 2) Full Scale Coils and 3) Model Coils. At the present time, "homework" assignments to the "Home Teams" given out at Magnet Technical Meetings, are the main vehicle of work accomplishment. This methodology will change as the on-site JCT staff increases; however, the present rate of the increases has been below original plans and expectations. Recruitment efforts remain a major part of the Division's activities.

COMING EVENTS *

- Technical Meeting on Magnets, Naka, Japan, 1-4 June
- MAC-3 Meeting, St. Petersburg, Russia, 29-30 July (date changed)
- TAC-3 Meeting, Naka, Japan, 9-11 September (date changed)
- IC-4 Meeting, San Diego, USA, 29 September - 1 October (date changed)

* Attendance at all ITER Meetings by invitation only.

Items to be considered for inclusion in the ITER Newsletter should be submitted to B. Kouvchinnikov, ITER Office, IAEA, Wagramerstrasse 5, P.O. Box 100, A-1400 Vienna, Austria, or Facsimile: 43 222 237762 (phone 23606392).

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