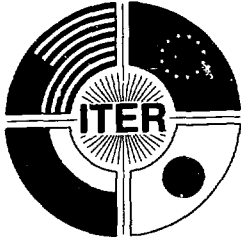


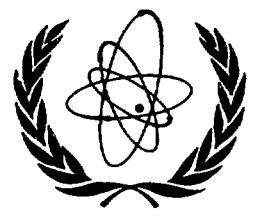
INTERNATIONAL THERMONUCLEAR EXPERIMENTAL REACTOR



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INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, AUSTRIA

SIXTH ITER COUNCIL MEETING

by Dr. V. Vlasenkov, ITER Council Secretary

The sixth Meeting of the ITER Council took place in Moscow, at the ITER Council Headquarters on 27 - 28 July 1994 and was attended by all members of the Council; the total number of participants was 36.

At the beginning the Council held a moment of silence in respect for the passing away of Dr. A. Kostenko, JCT staff member from the Russian Federation.

The Council considered the ITER Director's Report which, among other topics, included the following items:

- ◆ Findings of the ITER Sensitivity Study
- ◆ ITER EDA R&D Programme
- ◆ Project Work Breakdown Structure.

The Council took note of the TAC-5 and TAC-6 Reports. In endorsing the TAC recommendations, the Council accepted the Outline Design as the basis for continuing the technical work.

The Council noted that there is a need for periodic design reviews of the ITER systems as they are defined and refined over the remainder of the EDA and charged TAC with this task.



Participants in the Meeting

The ITER Council also requested the TAC to prepare a preliminary plan, in consultation with the Director, for conducting the Interim Design and Cost Review, including the participation of an appropriate number of design and costing experts from each Party. The TAC Chair should present this preliminary plan for consideration by the Council at its next meeting (IC-7). On the basis of the recommendation from the US, the Council designated Mr. J. McCann as a US TAC Member replacing Dr. J.F. Clarke.

As a result of the management review instituted at IC-5, the Council came to the following conclusion:

The management of the ITER EDA is particularly challenging because of the wide distribution of the team, the complexity of the Joint Central Team/Home Teams arrangement, the time consuming nature of the task assignment process, the slow build-up of the Joint Central Team staff, and the technical challenge of the design itself. Under these difficult conditions, the Joint Central Team has produced an Outline Design that is serving as a point of departure for proceeding into Protocol 2, and measures have been taken since IC-5 to make progress on several management issues. Nevertheless, substantial improvement in the management of the ITER EDA is still needed.

The Council thanked Dr. P.-H. Rebut for his contribution to ITER and praised his outstanding technical capability, commitment and vision, recognizing the heavy load that has been put on him in this critical and difficult phase of the EDA.

With the signature of Protocol 2, the EDA is entering into a new phase for which the Council considered appropriate to appoint Dr. R. Aymar, currently Directeur des Sciences de la Matière at the French C.E.A. and formerly Head of the Tore Supra Project, as the new ITER Director (for the profile on Dr. Aymar, see page 4). This appointment takes effect immediately. The Council took note of the new Director's address to the Council (see page 4).

In complement to the provisions of the ITER EDA Agreement, the Council, which will review the situation after the Interim Design Report has been issued, further specified:

- a) the Council, through its Chair, Co-Chair and Members, has the overall responsibility of representing ITER toward the political authorities;
- b) the four Deputy-Directors are responsible to the Director, each for a well-defined sector of design and R&D;
- c) a manager should be appointed as soon as possible as the Administrative Officer. Upon proposal by the Director, acting in consultation with the Parties, the Council appointed Dr. R. Iotti as Administrative Officer, to be effective on July 29, 1994.
- d) the Director, the four Deputy-Directors and the Administrative Officer constitute the General Project Board, which through frequent, periodic video and face-to-face meetings chaired by the Director validates the solutions to the major issues. The possible involvement of the Home Team Leaders will be considered;
- e) the three Deputy-Directors who are Joint Work Site Heads report to the Director on the operation of their respective Joint Work Site;
- f) the Council has decided that in certain matters the unanimous support of MAC, as expressed in its Reports and Advice to the Council, constitutes Council approval. These matters include task allocations and workshop/technical meetings schedules. The MAC should prepare and propose to the Council for its consideration an additional list of such matters;
- g) the Council intends to exploit the Contact Persons fully. In its meetings, resolution of non-contentious agenda items should require only Council confirmation of the relevant solution if it has been proposed by the four Contact Persons;
- h) the MAC which has been acting in a reviewing mode should become more pro-active in assuring a satisfactory management of the EDA. In this respect, the involvement in the MAC of more people with management experience will be considered, as appropriate;

- i) the membership of the TAC will be adapted to the EDA evolution under Protocol 2 toward detailed engineering and system design, nuclear issues, and safety analysis;
- j) in between ITER Council meetings, the four Programme Directors will continue to meet (video, audio or face-to-face) on behalf of the Council with the Director and, where appropriate, with the General Project Board.

The Council noted the MAC-6 recommendations on resources and deliverables, and the Director's intention to review these recommendations and proposals from his own standpoint and to report to the Council. The Council agreed that the Parties should initiate steps to increase substantially the Home Team design resources along the lines suggested by MAC, and the Director may optimize the balance of the JCT professionals and support staff resources within the overall envelope of resources set out in IC-5 ROD Attachment 13. The Council encouraged the Parties to use their best efforts to respond constructively to the needs of the project so as to minimize any adverse effects of the transition in management arrangements.

The Council determined that SWG-2, having accomplished its major tasks, was therefore terminated and that the few remaining, minor tasks were transferred to the CPs, namely, the "mutatis mutandis" forum and the glossary, while the legal aspects of the "commingled" R&D tasks were transferred to a sub-group being formed by MAC;

The Council assigned to the CPs, working with the Director, the development of documents on

- declarations of intention of the ITER Parties regarding joint ITER construction, and
- proposals for siting procedures.

The Council agreed to establish a Special Review Group, chaired by Dr. K. Tomabechi, to review the technical, social, and the safety and environmental requirements for siting ITER which will be prepared by the Director and the JCT for the design. The results of the review should be reported to the Council and the necessity of further review shall be determined.

The Council asked the Director to prepare for the Council at IC-7 the annual progress report for approval and subsequent transmission to the Parties.

The Council shared the concern of the Parties over the cost associated with international meetings. Consequently, the Council asked the Director to consider carefully the current approach to meetings so as to ensure their cost effectiveness and to seek ways to ensure the most equitable balance of meeting locations among the Parties.

The next ITER Council Meeting, IC-7, will be held in Japan on December 14-15, 1994.

DR. R. AYMAR, NEWLY APPOINTED ITER DIRECTOR



Born in 1936, Robert Aymar is a former student of the Ecole Polytechnique (with final exams in 1954). Leaving the Ecole, he has chosen the Corps des Poudres (included since in the Corps de l'Armement), permitting him to envisage his future in research.

With CEA since 1959, he has accomplished his entire career in the field of fundamental research, in particular in plasma physics and its application to research in controlled thermonuclear fusion.

As "Chef du Projet" Tore Supra from 1977, he led this undertaking from its initial definition to its completion in 1988.

R. Aymar, Ingénieur Général de l'Armement (2nd section), has been Directeur des Sciences de la Matière at CEA since March 1990. In this Directorate fundamental research is carried out, both experimental and theoretical, with regard to the constituents and states of matter (particle physics, nuclear physics and astrophysics), physics and physico-chemistry of the condensed state, environment through climatology, and thermonuclear fusion by magnetic confinement.

Further to his participation in numerous Councils due to his position, R. Aymar held special responsibilities in the follow-up of the research program of the European Community in the field of controlled thermonuclear fusion.

Member of TAC since its conception, he was appointed by the ITER Council during its 27-28 July 1994 meeting as ITER Director, replacing P.-H. Rebut.

ADDRESS TO THE ITER COUNCIL BY R. AYMAR

Mr. Chairman, Members of the Council, dear colleagues,

Among the measures taken to make progress in the management of the ITER EDA, you, the Council Members, have considered it appropriate to appoint a new Director for ITER. I fully respect these decisions and hope they will help driving the EDA towards a success, which is so vital for each of the Parties' Fusion Program.

Let me first join the Council's appraisal of Dr. Rebut's dedication to Fusion Research and contribution to ITER. Paul Henri is a friend of mine, and for so long, starting from school time - by the way, I was the happy one who introduced him to the French Fusion Program - that I was really reluctant to consider the possibility of succeeding him, when he was stepping down from his position.

Moreover, enjoying with great satisfaction my own present position at the French CEA, I was certainly the least inclined to consider resigning and leave it. Indeed, I am quite honoured that you, representatives of the four ITER Parties, have agreed on my name to take over such a difficult enterprise as ITER. Called back to again serve the Fusion Program, I am not so sure to be the right man, certainly not a providential one who will clear up all difficulties. But, I cannot, and I never did, escape from responsibilities if you judge that I can help: I will thus accept the challenge to fulfil, as closely as possible, the ITER EDA objectives, with the help of all members of the JCT and the four Home Teams.

Nevertheless, to accept such a charge may be considered irresponsible without having the possibility of previously performing a personal assessment of the present status of the project and its staff, and when knowing all the constraints attached to the ITER EDA objectives, timing and resources. Therefore, I hope the Council in his next meeting will consider favourably the few measures such as limited changes in the staff I will propose after being acquainted with the project, precisely those measures I should have obtained from the Council before being appointed.

Let me now introduce as my first input to the Council some of my views on directing the ITER EDA. They will address first ITER management and, second, project issues together with some preliminary plans.

A. First, a few principles I will like to follow in the ITER management, in complement, of course, to the directives specified by the Council:

A.1 The consensus among the Parties is the fundamental principle of the ITER collaboration. Reaching consensus in a technical matter like the EDA relies on two conditions:

- i) every Party, every actor in each Party, should feel it is involved in the progress of the project, from the concept phase to the design development: it is mainly the JCT's responsibility to care for this goal;
- ii) every Party, every actor in each Party, should be loyal to the project, accepting to follow a decision taken in the interest of the project, rather than in accordance with its own proposal: it is the HTs' responsibility to find solutions for conflicting interests, but always to meet the needs of the project, the success of which is vital for their own national program

A.2 Thus, the share of responsibilities between JCT and HTs should be, in my opinion, as follows:

- i) in design: the JCT should guide the process leading to design decisions, ensure design integration, define time schedules, but should share with the HTs the design development (conceptual and detailed);
- ii) in R&D: the JCT should have the primary responsibility for the definition of the R&D requirements, deliverables, time schedule and milestones, according to the need of supporting the design development. It should ensure R&D results integration into the design. The HTs should have a primary responsibility in the R&D implementation, including how to share the tasks among the different HTs to achieve maximum effectiveness.

A.3 The distribution of responsibilities within the JCT will follow the initial understanding that the components design should normally be developed, and the associated R&D identified and monitored, by the relevant Co-Center. Efficiency will be best achieved by including, as far as possible, detailed design activities inside associated R&D tasks, which can eventually lead to large work packages, a goal to pursue.

A.4 Besides the collegial management and collective responsibilities entrusted to the General Project Board defined by the Council, the Director and the HT Leaders should have regular but informal meetings, every 3-4 months. These meetings should aim at exchanging views on relevant technical and management issues, between five persons who carry main technical responsibilities in the project and are equally interested in its successful progress.

A.5 The Council has decided to appoint a Manager as Administrative Officer, responsible to the Director for management. His joining the project will probably require some redistribution of responsibilities between the Deputy Directors, to be discussed urgently with them in accordance with the wish to share a collective responsibility. The candidate, whom I have met, proposed by one Party, will certainly provide from his previous experience a plus to the JCT.

A.6 In their relationship with the Council and its two Advisory Committees, TAC and MAC, the JCT and the Director will always seek as much as possible advice and guidance for a preliminary proposal, in order to reach an easier positive endorsement when the final proposal will be reviewed. In this respect, I will appreciate the possibility of consulting from time to time with the four Program Directors, as proposed by the Council, and, of course, make ample use of the proven abilities of the Contact Persons.

B. Coming now to sensitive issues concerning the project, I will be very prudent in my comments, and wait for a better knowledge of the project on my side, before being committed to specific conclusions.

B.1 Therefore, my main initial activity will be:

- ◆ to review what has been done to date at the Co-Centers and how, through visits to San Diego, Naka and Garching successively, in late August and early September;
- ◆ to review the status of the design and its documentation of R&D plans and interfaces with design,
- ◆ to make sure that the Work Breakdown Structure, presented at this Council Meeting, is actually an operating tool for properly define the work to be done and to allow its follow-up.

B.2 For the present time and during this review, it is necessary to keep continuity in the staff activities; therefore, it is not opportune to make now changes in the basic parameters of the device, and thus the recommendations of TAC can be easily followed. Concerning MAC opinion on ITER EDA resources and deliverables, I think that a prerequisite, before reaching reliable conclusions, is to establish a complete description of major tasks, and to develop their functional scheduling, until procurement for construction; before this step, conflicts between budgetary constraints and schedule requirements for a specified level of achievements (art. 1 or/and 2 of the ITER Agreement) cannot be assessed precisely.

B.3 After the first visit to the Co-Centers and the first communication with the staff, a more thorough assessment of the concepts of basic components, of assembly and maintenance, and of safety options, will be necessary. I am presently inclined to organize this assessment by convening in one site, San Diego for example, during a few weeks in October/November, key persons from the JCT and HTs (this possibility will be discussed in the General Project Board, but advice is welcome). HTs should include industry specialists, who may provide, as consultants, inputs from their previous experiences, and play the role of liaison with the home industries, possibly to be introduced for subsequent design development activities.

B.4 The Interim Design Report, including cost review, safety analysis and site requirements, previously scheduled for March 1995, is obviously a very important step along the EDA. In my view, it should provide a coherent and robust reference design, with relevant deliverables and time schedules according to resources, making appropriate to assign to Home Teams, and their industries, large work packages including detailed design and relevant R&D. Following the design reassessment described above and the willingness to seek as much as possible advice and guidance from the ITER bodies on any change in design or parameters during the preparation of the Reports, it seems appropriate to consider producing the Interim Design Report for June 1995. A firm proposal will be made at the next IC Meeting.

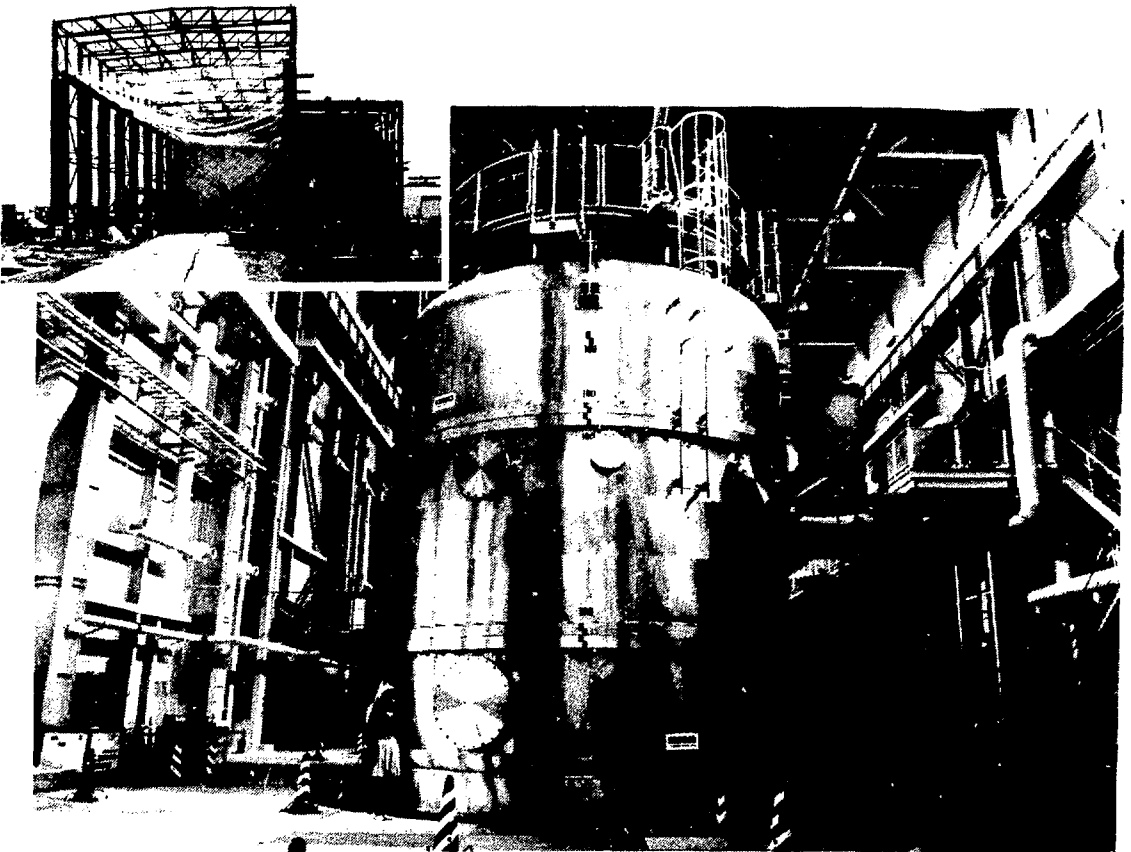
In conclusion, Mr. Chairman, the World Fusion Program requires for its progress ITER to be built and operate, thus answering scientific and technical feasibility issues. It is reasonable to assume that the joint efforts of the four Parties will continue to thoroughly support the ITER EDA, until the ITER construction is decided. The Teams involved, from the four Parties, are obviously dedicated to this goal and success can be within reach. Personally, I will be happy and proud if my future actions would help them to ensure this achievement.

VACUUM TANK FOR ITER MODEL COIL TESTING, INSTALLED AT JAERI NAKA
by Dr. H. Tsuji, Responsible Officer, Japanese Home Team

Under a Task Agreement, the Japanese Home Team has been constructing the test facility (CSTF) for the Central Solenoid Model Coil and some of the Insert Coils. These Coils will be tested jointly by the Home Teams and the JCT at the CSTF located at JAERI Naka Fusion Research Establishment. One of the major components of the CSTF is a vacuum tank which has an inner diameter of 6.5 m and a height of 9.1 m. This vacuum tank, with a weight of 116 tons, was newly built at Kobe Steel Ltd., and transferred by ship and trailers to JAERI Naka site by splitting it into three pieces. The installation of the vacuum tank was carried out in August 1994 as shown in the photograph here.

Advanced superconductors are now under fabrication by the four Home Teams for ITER Model Coils. The Central Solenoid Model Coil will be the largest superconducting pulsed coil ever been built. It will be tested at the operating current of 46 kA to generate a pulsed magnetic field of 13 T at the CSTF. The stored energy will be 650 MJ.

The large vacuum tank of the CSTF is essential to thermally insulate the test coils at the temperature of 4K from the atmospheric temperature of 300K. This is one of the largest components to be built by the ITER EDA. When standing at the foot of this vacuum tank, everyone may hear a sound of steady progress of hardware construction to achieve the goals of ITER Engineering Development through this international undertaking.



The Vacuum Tank installed at JAERI Naka

(Inserted is the photograph of the CSTF building still under construction in January 1993, as published in Newsletter Vol.2, No.1. The progress achieved during the last 18 months can be seen very clearly.)

FORTHCOMING EVENTS ^{*)}

- Disruption, Plasma Control and MHD Expert Group Workshop, Seville, Spain, 27 Sept.-1 Oct.
- Confinement Modeling and Data Base Expert Group Workshop, Seville, Spain, 3-4 Oct.
- Plasma Heating and Current Drive (RF and Neutral Beams) Technical Meeting and Workshop, Cadarache, France, 3-7 Oct.
- Technical Meeting on Safety and Environment, San Diego, USA, 10-14 Oct.
- Magnet Technical Meeting, Naka, Japan, 8-11 Nov.
- MAC-7, Tokyo, Japan, 30 Nov.-2 Dec.
- TAC-7, Naka, Japan, 5-7 Dec.
- IC-7, Japan, 14-15 Dec.

^{*)} Attendance at all ITER Meetings by invitation only.

Items to be considered for inclusion in the ITER Newsletter should be submitted to B. Kouvochinnikov, ITER Office, IAEA, Wagramerstrasse 5, P.O. Box 100, A-1400 Vienna, Austria, or Facsimile: 43 1 237762 (phone 23606392).

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