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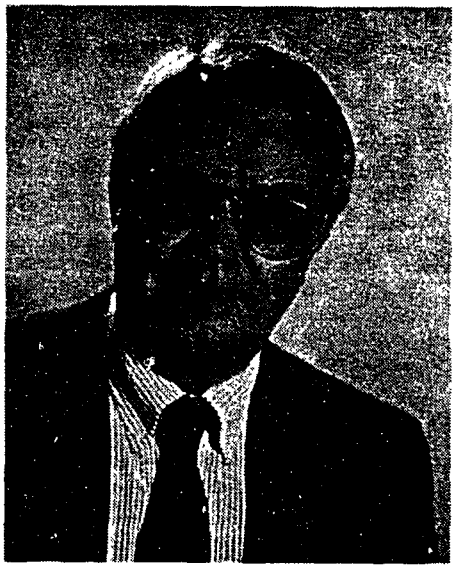
STARTING AT VIC AND THOUGHTS ON ITER

by Ambassador Oleg M. Sokolov, Permanent Representative of the Russian Federation to the International Organizations in Vienna



Oleg M. Sokolov, Ambassador Extraordinary and Plenipotentiary, entered the diplomatic service in 1960, after graduating from th Moscow State Institute of International Relations. He served in various capacities during 1960 – 1981 at the Ministry of Foreign Affairs (USA Office) and at the Embassy in Washington, USA, and then, until 1987, as Minister-Counsellor at that Embassy.

After serving as Ambassador to the Republic of the Philippines, 1987–1990, and as Ambassador to the Republic of Korea, 1990–1992, he returned to Moscow and assumed the duties of Director, Disarmament and Military Technologies Control Directorate, at the Ministry of Foreign Affairs of the Russian Federation.

In this most recent, as well as in his previous capacities, he participated in numerous bilateral and multilateral negotiations, intergovernmental and non-governmental fora on issues such as START 1 & 2 Treaties, non-proliferation, including nuclear non-proliferation, strategic stability, nuclear weapons destruction co-operative assistance agreements, etc.

In April 1995, Ambassador Sokolov started his new tour of duty as Permanent Representative of the Russian Federation to the International Organizations in Vienna.

The city of Vienna, one of the greatest centres of world culture and international diplomacy, strongly reminds one, among other things, of how borders of diplomacy have expanded since the times of Metternich. The Hofburg, where the Viennese Congress was dancing in 1815, can be seen in all its imperial splendor from the upper floors of the gigantic concrete structure which houses the Vienna International Centre (VIC), headquarters of several international organizations. Territorially, these two places are very close to each other. Yet, the difference in scope and nature of the problems which the diplomats accredited at the VIC are dealing with today is like the distance from the earth to the moon in comparison to diplomatic activities one and a half centuries ago.

When I recall the good old academic years in my "Alma Mater" – Moscow State Institute of International Relations (the Russian diplomatic school), where we were acquiring basic knowledge in history and political science, topics like the Viennese Congress or the Peace Treaty of Versailles were often our conversation pieces. But when visiting the VIC grounds the other day, I heard completely different terms, such as "arid zones", "reprocessing of irradiated fuel", "solar sources of energy", "extraction of plutonium", "energy saving technologies", etc.

This vast change in the areas of expertise, in which diplomats are currently involved, is, undoubtedly, one of the challenges of the 20th century. Diplomats cannot but meet this challenge. A vivid example of the inherent interdependence of policy and technology in modern times is, perhaps, the recently extended Treaty on Non-Proliferation of Nuclear Weapons, which, although quite "technical" in nature, has become an important instrument of international security, with no comparable analogue in the past.

Thoughts like these reflecting both the "compartmentalization" and sophistication of the tasks facing modern diplomacy, probably come to every diplomat who starts his or her work at the VIC. Definitely, I am no exception. It is, therefore, particularly heartening when one finds at least one problem which looks familiar.

When I heard for the first time, while in Vienna, the words "International Thermonuclear Experimental Reactor", I said to myself "Hey, this is something you have already come across, albeit many years ago". My memory told me that, way back in 1973, long before the current accord between Russia, the US, Japan and the European Union came into being, I was involved, together with my colleagues from the Foreign Ministry, in working out what was then the first agreement with the US on peaceful uses of atomic energy. That agreement provided in part for joint efforts to create an experimental prototype of a nuclear fusion reactor.

We came up with the idea of striking such a bilateral agreement as we were preparing for a summit meeting with US President Nixon in 1973. For inspiration, two of us, middle-level Foreign Ministry officials, decided to visit the Kurchatov Nuclear Physics Institute in Moscow to get a briefing from an eminent scientist, who was Deputy Director. It was a curious encounter. To explain what the problem was about, our host tried several formulas on us which he drew on a blackboard. But it became apparent in no time, to the man's great disappointment, that we could hardly understand a thing about them. To simplify matters, he then took us on a tour of the Institute's laboratories, which housed several "Tokamaks" – the Russian invented chamber designed to contain the fusion reaction. The tour gave us very useful basic information about the nature of the problem which still confronts the scientists in their quest to develop a virtually limitless, environmentally clean and economically competitive source of energy for the benefit of all humankind. Upon our return to the Ministry, we immediately sat down to write a draft agreement which was subsequently negotiated with the American side and signed at the summit.

Many years have passed since then and it is with deep satisfaction that I contemplate the long way left behind since the Soviet-American accord concluded in the early seventies, now that we have an unprecedented four-Party international project under the auspices of the IAEA. The substance of co-operation has changed significantly, too. Instead of confining themselves to scientific research, the participants of the ITER project have progressed as far as the level of detailed design activities.

I wish all those participating in the ITER project further success in their noble endeavour.

ITER MAGNET TECHNICAL MEETING

by Dr. R. Thome, Superconducting Coils and Structures Division, ITER Naka Joint Work Site

A Magnet Technical Meeting was held at the Naka JWS on April 19–21, 1995. Representatives from all Parties attended. A list of participants is shown below.

EU: P. Komarek, KfK; M. Perrella, ANSALDO; E. Salpietro, NET;
JA: T. Ando, JAERI; M. Sugimoto, JAERI; Y. Takahashi, JAERI;
RF: A. Alexseev, Efremov;
US: F. Kimball, Martin Marietta; J. Minervini, MIT; P. Titus, MIT
JCT: R. Aymar, P. Barabaschi, D. Bessette, P.L. Bruzzone, B. Green, M. Huguet, F. Iida, Y. Krivchenkov, N. Mitchell, K. Okuno, Z. Piec, C. Sborchia, M. Shimada, B. Stepanov, J. Stoner, R.J. Thome, R. Vieira, F. Vivaldi, F.M.G. Wong, K. Yoshida, E. Zapretilina

The main goal of the meeting was to review Home Team (HT) results for Cost Estimating Tasks and to initiate discussions on the scope and estimated credit requirements for Magnet System R&D for the balance of the EDA effort.

Cost Estimating Tasks

In February, following the Magnet Meeting at which the Joint Central Team (JCT) and HTs agreed on the reference design concept for the TF coils, the JCT sent out a Cost Estimating Task Specification for Manufacture and Supply of TF Coils and Structures.

In March, the information for the PF coils, Central Solenoid and Bucking Cylinder Assembly was updated and a Cost Estimating Task Specification was issued for these major components.

The Home Teams were requested to consider the following:

TF Coils — There are 21 identical "D"-shaped Toroidal Field (TF) coils to be supplied (including one spare coil). The Outer Intercoil Structures are an integral part of the TF cases and are costed as part of the TF coils.

Structures — The Mechanical Structure (MS) is composed of Outer Inter Coil Structure Connectors, Upper & Lower Crowns, and Keys.

PF Coils — There are a total of seven poloidal field coils numbered PF2 to PF8. They are distinguished from the Central Solenoid (sometimes referred to as PF1) in that their cross-sectional dimensions are relatively small compared to their diameter.

Central Solenoid & Bucking Cylinder — The Central Solenoid and Bucking Cylinder is an integral assembly consisting of a layer wound coil and two torsion cylinders (outer and inner). They are to be costed as an assembly.

In responding they were to supply costs according to a specific format, as well as:

- a Manufacturing Plan
- a Manufacturing Schedule
- a Cost Estimate including:
  1. Labour Resources
  2. Material Resources
  3. Tooling Resources
  4. Support Resources (including a layout of manufacturing facilities)

- Cost Studies for TF coils and Mechanical Structure:

  1. The baseline estimate should be for single pancake windings done with a single grade of conductor. A cost study to show the cost differential for double pancake windings with two conductors in hand is also desired.
  2. The baseline estimate is for the TF case to be a weldment made from plate stock. A cost study to show the cost differential for a case with selected sections made from forgings is also desired.
  3. The baseline estimate is to consider a wind, react, insulate and transfer process for the winding. A cost study to show the cost differential for a wind, insulate, react process is also desired.

- Cost Studies for PF Coils, CS and BC:

  The baseline estimate is to consider a wind, react, insulate and transfer process for the fabrication of the CS and for PF2 and PF7. A cost study to show the cost differential for a wind, insulate, react process is also desired. PF3, 4, 5, 6 and 8 will use NbTi and do not require a reaction as part of the coil fabrication process.

- A Feasibility Discussion (including recommendations for major R&D and cost or schedule improvement ideas).

Summaries of the cost estimating tasks for the February/March 1995 reference design were given by the EU, JA, RF, and US Parties at the April Magnet Meeting. It was clear that an intensive effort has been underway in all Parties on these tasks. However, several items remain to be resolved. Final reports are underway.

R&D Program

The JCT is in the process of updating the R&D plan for the balance of the EDA. This must be done in view of anticipated constraints on available ITER credits for the SC&S Division. In particular, the need for and the features of a TF Model Coil require definition. As an aid to this process, the EU was requested to review schedules and the impact of altering the existing TF Model Coil design to simulate the reference full-scale coil design. It was generally agreed that the program should be structured to accommodate the TF Model Coil; hence the details of this process will be pursued by the JCT with the HTs.

The JCT outlined a modified R&D program and sent a draft to the HTs for comment. This was discussed informally at the Magnet Meeting with expressions of interest from the HTs in specific task areas. The JCT will reformulate the plan in view of these comments and further guidance received from the project.

ITER SPOUSES CROSS THE CULTURES

by C. Smith, Foreign Scholar Advisor, UCSD

On the fourth Tuesday morning of each month, twelve to twenty ITER spouses get together at the UCSD International Center for a class called "Cross-Cultural Dialogues". In this class, ITER spouses learn more about the cultures of the four ITER Parties, develop an understanding of cross-cultural behaviours, experiences and expectations, and share their own cultural heritages. They also have a forum for sharing practical relocation information and concerns and discussing their role in the "ITER experience".

At recent sessions of "Cross-Cultural Dialogues", ITER spouses discussed communication customs, both verbal and non-verbal, and compared formal and informal social greetings in the different ITER countries. Customs and expectations of a dinner visit to a Russian family home and to an American family home were compared in detail. The group also enjoyed an outing to the International Cottages and the Japanese Friendship Garden in San Diego's Balboa Park.

In April, ITER spouses planned and presented a Russian dinner party at the UCSD International Center. Russian wives organized and provided recipes for Russian food, which was brought "pot-luck style" by the 65 attendees. Traditional Russian folk songs and dance highlighted the evening.

Future meetings of "Cross-Cultural Dialogues" will include presentations on Russian religious architecture, Japanese ceremonies, European art, holidays, and a discussion of family life issues in America.

Participants in "Cross-Cultural Dialogues"

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 1 237762 (phone 2060 26392).

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