

October 18, 2000

MEMORANDUM TO: Chairman Meserve
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan
Commissioner Merrifield

FROM: Janice Dunn Lee, Director /S/
Office of International Programs

SUBJECT: VISIT OF DR. ADOLPH BIRKHOFFER, MANAGING DIRECTOR,
GESELLSCHAFT FÜR REAKTORSICHERHEIT (GRS),
OCTOBER 24, 2000

Attached for all participants are schedule, biographic information, and background information and talking points for use during the NRC visit of Dr. Adolph Birkhofer, Managing Director, Gesellschaft für Reaktorsicherheit (GRS), October 24, 2000.

Dr. Birkhofer is in Washington as an invited participant in the expert panel "Twenty-Five Years since the Reactor Safety Study - the Legacy and the Lessons" of the WRSRM. While here, he requested meetings with the Commissioners.

By copy of this memorandum, SECY, OGC, EDO, and OPA are being advised of the final arrangements.

Attachments: As stated

cc: SECY
OGC
EDO
OPA
RES

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**NRC VISIT OF
DR. ADOLPH BIRKHOFFER, MANAGING DIRECTOR
GESELLSCHAFT FÜR REAKTORSICHERHEIT (GRS)
OCTOBER 24, 2000**

Schedule

09:00 am	Meeting with Chairman Meserve, O17-D-1
09:30 am	Meeting with Commissioner Diaz, O18-H-1
10:00 am	Meeting with Commissioner McGaffigan, O18-H-1
10:30 am	Meeting with Commissioner Dicus, O18-H-1
11:00 am	Meeting with Commissioner Merrifield, O18-H-1

DISCUSSION TOPICS

During his meetings with the Commissioners, Dr. Birkhofer plans to brief them on his impressions of the safety situation in the FSU, future approach for NEA, and the key activities of INSAG (IAEA). He would like to be informed of the philosophy and technical bases for extending reactor licenses in the US.

CURRICULUM VITAE

Prof. Dr. phil. , Dr.-Ing. E.h. Adolf Birkhofer

Mr. Birkhofer was born in Munich in 1934. He studied Electrical Engineering at the Institute of Technology, Munich, from 1953 to 1958 and Theoretical Physics at the University of Innsbruck from 1958 to 1961 (Doctor's Degree: Dr. phil. 1964).

After simultaneous industrial activities from 1958 to 1963 he joined the Laboratory for Reactor Control and Nuclear Safety at the Technical University of Munich, where he was engaged in the research on Reactor Dynamics and Reactor Safety. In 1967, he habilitated at the Department of Mechanical and Electrical Engineering of the Technical University of Munich in the field of Control Technology. In 1971, he was appointed to the chair of Reactor Dynamics and Reactor Safety at the Technical University of Munich (Professor in Ordinary since 1975). In 1977, Mr. Birkhofer became Managing Director of the Gesellschaft für Anlagen- und Reaktorsicherheit (GRS), a research and consulting organization in the field of the safety of nuclear installations and radiation protection.

Including its forerunner organizations, this organization has more than twenty years of experience in nuclear technology. GRS has a staff of 350 highly trained and experienced engineers and scientists of various disciplines and additional 110 employees in supporting services and covers a broad scope of activities including

- the preparation of expert opinions for German and foreign authorities within the framework of licensing procedures for all types of nuclear installations,
- the participation in R & D activities concerning nuclear engineering, nuclear fuel cycle technology, radiological and environmental protection, risk analyses as well as related safety engineering,
- the advice and assistance to the Federal Minister for the Environment, Nature Conservation and Reactor Safety regarding the implementation of the Atomic Energy Act,
- planning and management of research programs and projects on behalf of the Federal Minister for Research and Technology, and the Federal Minister for Environment, Nature Conservation and Reactor Safety.

- support of the regulatory bodies of the States of the Federal Republic of Germany with regard to safety-related problems within their licensing procedures.

In the end seventies and the early eighties, GRS carried out under direction of Mr. Birkhofer a two-phase analysis, the so-called German Risk Study, in order to investigate the risk involved with the operation of nuclear power plants.

For a couple of years, intensified especially after the Chernobyl accident, GRS is engaged in the safety analyses of Soviet-designed nuclear reactors. As the first Western expert organization GRS performed in-depth analyses for the three major types of Soviet pressurized water reactors and rendered detailed recommendations for the improvement of safety.

Beside his professional occupation, Mr. Birkhofer is

- chairman of the Reactor Safety Commission (RSK), an advisory committee to the Government of the Federal Republic of Germany (Member since 1965, Chairman 1974-1977; 1986-1990),
- member of the Committee on the Safety of Nuclear Installations (CSNI) of the Organization for Economic Co-Operation and Development (OECD) since 1969 (Chairman 1978-1982),
- member of the International Nuclear Safety Advisory Group (INSAG) to the Director General of the International Atomic Energy Agency (IAEA),
- member of two advisory groups of the European Bank for Reconstruction and Development, the Safety Review Group (SRG) and the Nuclear Power Advisory Group (NPAG). (The latter advises, under the chair of Mr. Birkhofer, the Bank on safety upgrades for nuclear reactors in Eastern Europe),
- member of the Scientific and Technical Committee (STC) of the European Community since 1973 (Chairman 1984-1988) and
- of the Scientific and Technical Council to the Prime Minister of the German State of Bavaria (since 1988).

Furthermore,

- he was member of a special committee reviewing the NRC Severe Accident Risk Report (NUREG-1150),
- of the Enquete-Commission "Zukünftige Kernenergie-Politik" (Future Nuclear Power Politics) of the German Parliament (8th and 9th terms of office) and
- of the Reactor Safety Commission of Austria (from 1978 to 1990).

Besides his lectures at the Technical University of Munich, Mr. Birkhofer gives lectures at the Massachusetts Institute of Technology (MIT) during its Reactor Safety Course. He published more than 150 papers and presentations on nuclear safety and risk assessment during his professional activities.

Mr. Birkhofer was honoured with several awards:

Otto-Hahn-Prize of the City of Frankfurt (1976), Doctor Honoris Causa Degree of the University of Karlsruhe (1983), ANS Fellow (1983), Wilhelm-Exner-Medaille (1984), Verdienstkreuz 1. Klasse des Verdienstordens der Bundesrepublik Deutschland (1986), Chevalier de la Légion d'Honneur (1987), Bayerischer Verdienstorden (1988), Tommy Thompson Award of the Nuclear Reactor Safety Division of the American Nuclear Society (1989), Aachen-Münchener-Prize for Technology and Applied Science (1993).

BACKGROUND INFORMATION

REGULAR INTERACTION WITH NRC

Dr. Birkhofer is the Managing Director of the Company for Reactor Safety (GRS) which is located in Garching. Previously, he was the chief nuclear safety advisor to the German federal regulator and served as the Chairman of the German Reactor Safety Commission (similar to ACRS). In these positions, he interacted with NRC Commissioners and staff on many regulatory and research matters over the past twenty years. However, with the formation of the Socialist-Green government in 1998 (see discussion below), the pro-nuclear Birkhofer fell out of favor with the new government appointees and he no longer serves in these positions. More recently, he has been deeply involved in German and international assistance efforts to the FSU. Dr. Birkhofer chairs the Safety Review Group of the European Bank for Reconstruction and Development (EBRD). This group is vital in determining safety projects in the FSU to be funded by the EBRD. Dr. Birkhofer has been active in OECD/NEA activities for many years as well as other international bodies. He was the Chairman of the "Wisemen's" group that reviewed and made recommendations on the long term directions for the NEA.

TALKING POINT

The Commissioners may wish to:

- Welcome Dr. Birkhofer and acknowledge his long history of interacting with NRC.

CURRENT SITUATION IN GERMANY

Since the election of a coalition Socialist-Green government in the fall of 1998, NRC has had infrequent contact with our regulatory counterparts at BMU. Juergen Trittin, Minister of BMU, is a member of the Green Party and an ardent nuclear opponent. Mr. Trittin appointed Wolfgang Renneberg, a Socialist, to be head of the nuclear safety and radiation protection department of the Ministry. After a noticeable German absence from a few International Nuclear Regulators Association (INRA) meetings, Mr. Renneberg participated in one recent meeting.

During his short tenure, Mr. Trittin has proposed a number of controversial anti-nuclear initiatives, such as terminating existing utility commitments to reprocess spent fuel, mandating a nuclear power plant phase-out, and dismissing the RSK membership. Also, the prohibition against spent fuel movement continues as a critical issue because a few plants do not have space in the spent fuel pool nor licensed on-site dry storage.

Internationally, the safety situation in the Former Soviet Union (FSU) remains an important concern of BMU. The government prefers that new electrical generation in the FSU be non-nuclear.

TALKING POINT

The Commissioners may wish to:

- Inquire as to the impact of the new government on the activities and budget of GRS, especially the collaboration with France on the development of the European Pressurized Reactor (EPR).

POWER REACTOR PHASE-OUT

In June, the coalition German government and the electric utility industry agreed on a phase-out of all nineteen nuclear power reactors in Germany. About 1/3 of Germany's electricity is generated by these plants. The agreed, average lifetime for each reactor is 32 operational years although individual plants may run more or less than the average. The utilities will be able to spread the remaining energy output as they choose, meaning that there is not an absolute deadline. This tradeability indicates that the newer and larger units may operate beyond 32 years. The last plant should end operation in the 2020s. Additionally, German utilities agreed to end spent fuel reprocessing by July 1, 2005.

In return, the government will not interfere with routine operation of the plants, transportation of spent fuel and waste, and the management of nuclear waste.

This phase-out is viewed as a major setback to the use of nuclear energy in western Europe. It follows a similar move in Italy, and plans to eliminate nuclear power in Sweden.

TALKING POINT

The Commissioners may wish to:

- Acknowledge the recent power reactor phase-out accord agreed to by the German government and industry. Inquire as to the current implementation status. Are all involved German states following the federal government's position?

ASSISTANCE TO EASTERN COUNTRIES

The bulk of German assistance toward improving the safety of Soviet-designed reactors operating in the countries of Central and Eastern Europe (CEE) and of the former Soviet Union (FSU) is in the multilateral arena. Germany is a contributor to the EBRD-administered Nuclear Safety Account and Chernobyl Shelter Fund. Germany supported the recently completed IAEA Extrabudgetary Program on the safety of VVER and RBMK nuclear power plants, primarily through the provision of cost-free experts. Germany also participates in the G-7 Nuclear Safety Working Group and the G-24 Nuclear Safety Assistance Coordination mechanism.

The current German government is strongly anti-nuclear. This has placed Germany in a difficult position in its dealings with the G-7 and Ukraine on Chernobyl closure issues. The Ukrainian government has announced that it will close the last operating reactor at Chernobyl (Unit 3) by

December 15, 2000. The Ukrainians are continuing to press for G-7 support and international financing to complete two VVER-1000 reactors (one at Rivne and one at Khmel'nitsky, referred to as R4/K2) as part of a quid pro quo for Chernobyl closure. The previous German government supported completion of these two new VVER-1000s. However, the current government is caught between Ukrainian and other G-7 support and its domestic nuclear phase-out agenda. On one hand, Germany does not want to upset efforts to gain Chernobyl closure. On the other hand, opinions within Germany are reportedly so strong that anything less than cancellation of R4/K2 will be viewed as German support for its completion.

Germany, as a member of the European Union (EU), participates in the European Commission (EC)-administered PHARE and TACIS Programs. These two programs are the principal vehicles by which the member states of the EU provide nuclear safety-related assistance to the CEE and FSU countries.

TALKING POINTS

The Commissioners may wish to:

- Commend Germany for its strong role in aggressively addressing the safety problem in the FSU and CEE and its substantial program of bilateral and multilateral assistance.
- Inquire as to the German government's position regarding financial support for R4/K2 completion.
- Inquire as to Dr. Birkhofer's impressions of the accomplishments of the West's assistance efforts to the FSU and CEE?

INTERNATIONAL NUCLEAR SAFETY ADVISORY GROUP (INSAG)

Background

The International Nuclear Safety Advisory Group (INSAG) is an independent body which advises the IAEA Director General (DG) in the field of nuclear, radiation and radioactive waste safety. INSAG recommendations are provided to the Director General but are addressed by the Deputy Director General for Nuclear Safety. INSAG is charged with recommending the underlying principles upon which appropriate safety standards and measures can be based; providing a forum for the exchange of information on generic safety issues of international significance; identifying important current safety issues and to draw conclusions on the basis of results of safety activities worldwide (and other information such as research and development results); and giving advice on safety issues on which additional efforts may be required.

The DG appoints INSAG members for a three year period; the key selection criterion is having high professional competence in the field of nuclear safety. Members often come from regulatory organizations, research and academic institutions and the nuclear industry. Countries currently represented on INSAG include: Russia, Canada, Switzerland, Germany, France, Argentina, United Kingdom, Czech Republic and South Africa. Representatives from

the OECD/NEA and WANO are also members. The U.S. representative for the most recent term, which began in November 1999, is Ashok Thadani. INSAG is currently chaired by Alec Baer of Switzerland. Dr. Birkhofer is an INSAG member.

Current Issues

INSAG has been vocal about a series of issues and its Chair has written to the Director General on various occasions to voice INSAG concerns. Most recently, Chairman Baer has written to express INSAG's concern about the safety of research reactors and urging support for a protocol to the Convention on Nuclear Safety or similar legal instrument "without delay" to cover them. The Chairman also wrote to the DG about the safety and security of radiation sources. Issues of concern flagged for further examination include management of change, independence of the regulatory authority, decommissioning, and criticality. Other issues of interest relate to the future viability of nuclear technology, including waste management, maintenance of knowledge, and attracting young people to the field.

TALKING POINT

The Commissioners may wish to:

- Ask Dr. Birkhofer to share his views on the key activities of INSAG.

TEMELIN-1 INITIAL CRITICALITY

Temelin-1, a VVER-1000 (PWR) located in the Czech Republic, went critical on October 11. The utility CEZ is planning to gradually increase reactor power to 30% during the first two months of operation, then to 100% over the next three months. CEZ expects to begin selling power from Temelin-1 on a commercial basis this December. Construction of Temelin-2 is expected to be completed in 1½ years.

Temelin-1 is one of the first reactors to be completed since the breakup of the Soviet Union that has incorporated safety upgrades into the original Soviet design. For example, the original Soviet-designed analog instrumentation and control system was replaced with a U.S.-designed digital instrumentation and control system and it will utilize Westinghouse rather than Russian fuel.

Because of its close proximity, the German government had GRS make an assessment of the safety of Temelin. Dr. Birkhofer will report on their findings.

The startup of Temelin-1 has been controversial. The Austrian government voiced strenuous objections to startup (Temelin is approximately 30 miles from the Czech/Austrian border). The Austrian Foreign Minister told the Foreign Ministers of the other European Union member states that the reactor posed a danger to Central Europe. In addition, protestors blocked transit points between Austria and the Czech Republic in the weeks leading up to initial criticality. Two days before Unit 1 achieved initial criticality all 15 border crossings between the two countries were closed for approximately 13 hours.

TALKING POINTS

The Commissioners may wish to:

- Note that NRC has an assistance program with the Czech regulator and that we have found the organization to be quite capable.
- Inquire as to the findings of the GRS safety assessment.

NUCLEAR ENERGY AGENCY ACTIVITIES

Dr. Birkhofer has been a longstanding advisor to the NEA. Recently in the October 2000 NEA Steering Committee meeting, the issue of Poland membership was addressed. There was no consensus to allow Poland to join the NEA in part based on the recommendations of the 1998 Birkhofer report which found that new membership should be offered to very few countries, those with demonstrated capacity to contribute substantially to maintaining and strengthening the NEA as an international center of competence.

TALKING POINT

The Commissioners may wish to:

- Seek Dr. Birkhofer's views on NEA expansion in light of European Union accession issues.