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## SUPPLEMENTARY NUCLEAR POWER SAFETY PROGRAMME

### Note by the Director General

1. In June of this year, the Board of Governors considered proposals made by the Director General for a supplementary nuclear power safety programme. The Board approved the proposals and authorized the Director General to begin immediately with implementation of the supplementary programme to the extent that voluntary contributions were made in 1979 for that purpose by Member States.
2. In September, the Director General reported orally to the Board on the measures taken since its June meetings in implementing the supplementary programme.
3. For the information of the Agency's membership as a whole, the Director General's proposals as presented to the Board in June are appended hereto.



APPENDIX

STRENGTHENING OF THE AGENCY'S ROLE AND PROGRAMMES IN  
NUCLEAR SAFETY ACTIVITIES

Supplementary nuclear power safety programme

Note by the Director General

1. The Agency's approved nuclear safety programme for 1979-80 is set forth in document GC(XXII)/600 (the Agency's programme for 1979-84 and budget for 1979). The draft budget for 1980 contains certain modifications of that programme (GC(XXIII)/612, paras C.27 to C.30).
2. The accident that occurred on 28 March 1979 at the Three Mile Island nuclear power plant in the United States has underlined the importance of the Agency's work on nuclear power reactor safety and the need to review the relevant programmes and to consider new initiatives.
3. When news was received of the accident, two staff members were sent to the United States in order to obtain direct information and a working group was established in the Secretariat to monitor the event and its consequences.
4. As the Director General informed the Administrative and Budgetary Committee, ten experts in industrial and nuclear safety were subsequently invited to the Agency's Headquarters in order to make a preliminary review of the implications of the accident for the Agency's programme. The experts met on 22-23 May 1979. The names of the experts are listed in Annex I and their terms of reference in Annex II to this document. They elected Dr. Floyd Culler of the United States as Chairman. Their main findings are contained in Annex III.
5. The Director General also received communications from the Governments of Brazil, the Federal Republic of Germany and Sweden concerning the desirability of amplifying the Agency's activities relating to nuclear power plant safety. These are being circulated to all Member States in document INFCIRC/270.
6. In the communication from the Government of Brazil, the Agency is urged to give, within the framework of its activities, prompt and special attention to the safety of nuclear power plants. The Government of the Federal Republic of Germany suggests that a principal activity for international co-operation might be an objective study of the safety of nuclear power plants, with an examination of issues such as (1) an evaluation of safety concepts, (2) a comparison of basic safety requirements, (3) an exchange of views on the future development of safety concepts and (4) intensified international co-operation in safety research and engineering. The Government of Sweden emphasizes the need to harmonize safety rules and regulations in force in various countries and to identify safety areas suitable for international agreements and, if convenient, is prepared to host a meeting on these matters.
7. It is clear that the tasks indicated in the above communications to the Agency fall within the statutory functions of the Agency.

8. In order to meet the desire that the Agency achieve, as soon as possible, practical results from a supplementary nuclear safety programme, the Director General suggests the following:

- (a) The experience which has already been acquired by the Agency in the nuclear safety area, especially through the nuclear safety standards (NUSS) programme, could be used with appropriate modifications in performing new safety activities with a minimum of delay;
- (b) Other activities requested may be dealt with using the experience which the Secretariat has gained through comprehensive studies performed in connection with - for example - the Market Survey for Nuclear Power in Developing Countries, regional nuclear fuel cycle centres and the on-going International Nuclear Fuel Cycle Evaluation.

9. In the light of the recommendations made by the experts who met on 22-23 May, and of the proposals by the three above-mentioned Governments, the Director General considers that it would be desirable as a first step to supplement the 1979-80 nuclear safety programme by the following actions:

- (a) Expansion of the tasks at present assigned to the Senior Advisory Group (SAG), which is responsible for general surveillance of the development and direction of the NUSS programme and for advising on the acceptability of the draft codes and guides being issued under that programme (the composition of the SAG is shown in Annex IV). The NUSS programme is now in its fifth year, and the first five codes of practice and eleven safety guides were published or completed in 1978. A further 29 safety guides are in preparation. The SAG has established its authority in the nuclear power plant safety field, has performed a valuable service to the Agency since its inception and has acquired unique experience in dealing with nuclear power plant safety questions at the international level. The Director General considers that full use should be made of the expertise thus available. Among the topics to which the SAG should be asked to give particular attention are:
  - (i) Instrumentation and information display for accident conditions;
  - (ii) Equipment reliability;
  - (iii) Containment;
  - (iv) Emergency core cooling;
  - (v) Decay heat removal;
  - (vi) Small-break accidents;
  - (vii) Emergency planning; and
  - (viii) Operator training for accidents.

The SAG may wish to include additional topics in the supplementary programme. Certain of the topics may be dealt with both by existing NUSS working groups and technical review committees and by additional committees that may be established. The supplementary programme would be reflected in additional safety guides and codes of practice which would be prepared and distributed to Member States in accordance with the procedures that the Board has already approved for the NUSS programme;

- (b) Encouragement of an exchange of safety information, especially information relating to the implications of the Three Mile Island accident. A general symposium on nuclear power plant safety would be held in 1980. It would cover the causes and lessons of accidents and include subjects such as operator training, safety system design, instrumentation requirements, safety aspects of fuel performance, and post-accident activities. The extent to which the symposium programme should deal with the suggestions of Member States referred to in paragraph 6 will be further considered;
- (c) In the light of recent events, which have demonstrated the need for adequate emergency plans and assistance, the inclusion in the newly prepared edition of document WP/35, "Mutual Emergency Assistance for Radiation Accidents", of an up-to-date listing of equipment, supplies and manpower for short-term needs (the needs during the first several days after an accident) and for longer-term needs. This would include the preparation and maintenance of a roster of available experts. Owing to the complexities of emergency assistance in the event of an accident, there is a clear need for a detailed examination of the problem; it is considered that, for such an examination, the services of consultants and meetings of experts would be necessary;
- (d) Expansion of the Agency programme aimed at assisting Member States to strengthen their national regulatory capability.

10. In order to cope with the increased work-load, it is recommended that posts for four reactor safety specialists be added to the manning table of the Division of Nuclear Safety and Environmental Protection. The new, additional staff members should have substantial experience in nuclear safety and be specialized in one of the following four areas: mechanical and structural systems, electrical and instrumentation systems, operations, and accident analysis.

11. The Director General considers that the supplementary programme should be started as soon as possible after the Board has approved it. In 1979, it should be financed through such special voluntary contributions as Member States may be willing to make for this purpose and be implemented to the extent that such contributions are received. (The Board may recall that a similar procedure was followed when it considered that an expansion of the Agency's relevant activities was urgently needed in view of the results of the United Nations Conference on the Human Environment held in Stockholm in 1972.) For 1980, the supplementary programme should be included in the budget estimates which the Board will submit to the General Conference in December 1979.

12. The following is a more detailed breakdown of the cost estimates for 1980:

	US \$
Salaries and wages	<u>          </u>
Established posts (2 P-5, 2 P-4, 2 GS for full year)	196 000
Consultants (including 7 working group meetings costing \$ 6000 each)	55 000
Common staff costs (for the above 6 posts)	57 000
Travel (6 advisory missions)	60 000
Meetings	
Conferences, symposia, seminars (1 symposium)	34 000
Technical committees, advisory groups (3 technical review committee meetings costing \$ 18 000 each, 2 advisory group meetings)	82 000
Linguistic services (translation of 3 guides)	40 000
Printing and publishing services (proceedings of symposium)	70 000
Estimate based on an exchange rate of S 15.05 to US \$ 1	<u>594 000</u>
Adjustment of programme cost estimate for a rate of S 14 to US \$ 1	34 000
TOTAL	<u>628 000</u>

13. Other international organizations (e. g. WHO, CEC, NEA/OECD, CMEA and ISO) are already associated with the development of the NUSS programme and it is proposed that they should be similarly associated with the supplementary programme.

14. The Director General intends to consult Member States interested in further international efforts in the reactor safety area. Upon completion of these consultations the Director General will submit to the Board his recommendations concerning further efforts.

#### RECOMMENDED ACTION BY THE BOARD

15. The Director General, who would appreciate the comments of the Board on the proposed supplementary programme, recommends that the Board authorize him, subject to such comments as the Board may make on the supplementary programme, to include it in the budget for 1980 and to take steps to begin its implementation in 1979 to the extent that voluntary contributions are made for this purpose by Member States.

ANNEX I

PARTICIPANTS IN MEETING OF EXPERTS HELD ON 22-23 MAY 1979

Mr. D. BENINSON	Comisión Nacional de Energía Atómica Argentina
Mr. W. BRAUN	Kraftwerk Union A. G. Federal Republic of Germany
Mr. F. CULLER	Electric Power Research Institute USA
Mr. J. FOSTER	Consultant Canada
Mr. R. GAUSDEN	Nuclear Installations Inspectorate Health and Safety Executive UK
Mr. H. ISHIKAWA	Japan Atomic Energy Research Institute Japan
Mr. O. D. KAZATCHKOWSKI	Institute of Physics and Power USSR
Mr. J. KEHER	Federal Ministry of Technical Development and Investments Czechoslovakia
Mr. M. R. RAO	Bhabha Atomic Research Centre India
Mr. P. TANGUY	Institut de Protection et de Sûreté Nucléaire, CEN de Fontenay-aux-Roses France

A N N E X I I

TERMS OF REFERENCE FOR MEETING OF EXPERTS HELD ON 22-23 MAY 1979

To provide advice, in light of the possible implications of the Three Mile Island accident, on possible new initiatives that IAEA might take in the area of Nuclear Power Plant Safety. In particular,

- (A) review the scope of safety considerations (including the competence requirements of plant operators) which should be the subject of internationally agreed recommendations, and advise on the need for more specific and detailed requirements than those presently recommended by the IAEA Safety Standards Programme.
- (B) identify areas for intensified safety-related research and development efforts by Member States in which the co-ordinating role of the IAEA could be desirable.
- (C) initiate development of a roster of leading nuclear safety specialists whom the IAEA could employ to give advice and assistance to requesting Member States particularly in the case of nuclear power plant emergencies.
- (D) make suggestions regarding the strengthening of IAEA's role and programmes in nuclear safety activities.

ANNEX III

MAIN FINDINGS OF MEETING OF EXPERTS HELD ON 22-23 MAY 1979

It was agreed that the Agency should have an increasingly important role in the area of nuclear power plant safety and there was a general consensus that prompt but considered action must be taken. The Agency's existing safety activities were examined and recommendations were made to expand and supplement these efforts. The increased efforts would focus principally on the following:

- (a) Active sponsorship and participation in symposia and specialized meetings related to the lessons of the Three Mile Island accident;
- (b) Additional specialized safety guides in the Nuclear Safety Standards Programme;
- (c) A more active role in areas of safety research and development activities especially in collecting, reviewing and evaluating progress and distributing information;
- (d) A general increase in the advisory and technical assistance services; and
- (e) Emergency accident assistance.

The meeting participants also recommended actions which the Governments of Member States should consider to assist and complement the Agency's activities. These included the following:

- (a) A policy to assure that the results of safety research be more freely and quickly made available;
- (b) A requirement that an adequate accident emergency plan be considered a prerequisite for the sale or purchase of a nuclear power plant;
- (c) Bilateral, multilateral or regional international agreements to facilitate mutual assistance in cases of an accident emergency;
- (d) Periodic tests of emergency plans which would take into account the countries' own resources for manpower, equipment and supplies as well as those available through agreements; and
- (e) Requests for the Agency to more routinely check Member States' safety activities and to consider the non-mandatory recommendations that are made.

ANNEX IV

SENIOR ADVISORY GROUP (SAG) MEMBERS

Mr. D. Beninson  
Comisión Nacional de Energía  
Atómica  
Buenos Aires, Argentina

Mr. D.G. Hurst (Chairman)  
Atomic Energy Control Board  
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Mr. J. Beranek  
Czechoslovak Atomic Energy Commission  
Department of Nuclear Safety and  
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