



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JUL 10 1980

MEMORANDUM FOR: R. Mattson, Director
Division of Safety Technology
Office of Nuclear Reactor Regulation

S. Hanauer, Director
Division of Human Factors Safety
Office of Nuclear Reactor Regulation

R. Vollmer, Director ← 542
Division of Engineering
Office of Nuclear Reactor Regulation

N. Moseley, Director
Division of Reactor Operations Inspection
Office of Inspection & Enforcement

FROM: W. M. Morrison, Assistant Director
for General Engineering Standards
Division of Engineering Standards
Office of Standards Development

SUBJECT: IAEA Safety Guide Review Request (SG-07)

Please review the enclosed safety guide concerning maintenance of nuclear power plants. The following is a summary of this review request:

1. IAEA Safety Guide Title: "Maintenance of Nuclear Power Plants", SG-07, Rev. 7, dated December 11, 1979.
2. NRR Reference Number: None
3. NRC Committee Members on IAEA Technical Review Committee (TRC) Operation:
B. H. Grier, IE (Member)
J. L. Milhoan, SD (Alternate Member)
4. Requested Action: Review the IAEA draft safety guide with particular focus on major problem areas or conflict with current U. S. practice. Please send any comments you may have to J. L. Milhoan, SD.
5. Requested completion date: August 11, 1980.
6. Background: The IAEA Senior Advisory Group (SAG) has approved the subject guide for transmittal to IAEA Member States for comment. Staff comments received as a result of this review request will be used to prepare U. S. comments on the guide.

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To: Multiple Addressees

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The draft guide (Rev. 4 dated November 30, 1978) was previously distributed for staff review by an IAEA Safety Guide Review Request on February 9, 1979. The attached guide reflects consideration of SAG comments on the TRC draft.

W. M. Morrison

W. M. Morrison, Assistant Director
for General Engineering Standards
Division of Engineering Standards
Office of Standards Development

Enclosure: SG-07

cc: w/encl: W. Haass, NRR
G. Knighton, NRR
S. Bryan, IE

FOREWORD

by the Director General

The demand for energy is continually growing, both in the developed and the developing countries. Traditional sources of energy such as oil and gas will probably be exhausted within a few decades, and present world-wide energy demands are already overstraining present capacity. Of the new sources nuclear energy, with its proven technology, is the most significant single reliable source available for closing the energy gap that is likely, according to the experts, to be upon us by the turn of the century.

During the past 25 years, 19 countries have constructed nuclear power plants. More than 200 power reactors are now in operation, a further 150 are planned, and, in the longer term, nuclear energy is expected to play an increasingly important role in the development of energy programmes throughout the world.

Since its inception the nuclear energy industry has maintained a safety record second to none. Recognizing the importance of this aspect of nuclear power and wishing to ensure the continuation of this record, the International Atomic Energy Agency established a wide-ranging programme to provide the Member States with guidance on the many aspects of safety associated with thermal neutron nuclear power reactors. The programme, at present involving the preparation and publication of about 50 books in the form of Codes of Practice and Safety Guides, has become known as the NUSS programme (the letters being an acronym for Nuclear Safety Standards). The publications are being produced in the Agency's Safety Series and each one will be made available in separate English, French, Russian and Spanish versions. They will be revised as necessary in the light of experience to keep their contents up to date.

The task envisaged in this programme is a considerable and taxing one, entailing numerous meetings for drafting, reviewing, amending, consolidating and approving the documents. The Agency wishes to thank all those Member States that have so generously provided experts and material, and those many individuals, named in the published Lists of Participants, who have given their time and efforts to help in implementing the programme. Sincere gratitude is also expressed to the international organizations that have participated in the work.

The Codes of Practice and Safety Guides are recommendations issued by the Agency for use by Member States in the context of their own nuclear safety requirements. A Member State wishing to enter into an agreement with the Agency for the Agency's assistance in connection with the siting, construction,

commissioning, operation or decommissioning of a nuclear power plant will be required to follow those parts of the Codes of Practice and Safety Guides that pertain to the activities covered by the agreement. However, it is recognized that the final decisions and legal responsibilities in any licensing procedures always rest with the Member State.

The NUSS publications presuppose a single national framework within which the various parties, such as the regulatory body, the applicant/licensee and the supplier or manufacturer, perform their tasks. Where more than one Member State is involved, however, it is understood that certain modifications to the procedures described may be necessary in accordance with national practice and with the relevant agreements concluded between the States and between the various organizations concerned.

The Codes and Guides are written in such a form as would enable a Member State, should it so decide, to make the contents of such documents directly applicable to activities under its jurisdiction. Therefore, consistent with accepted practice for codes and guides, and in accordance with a proposal of the Senior Advisory Group, "shall" and "should" are used to distinguish for the potential user between a firm requirement and a desirable option.

The task of ensuring an adequate and safe supply of energy for coming generations, and thereby contributing to their well-being and standard of life, is a matter of concern to us all. It is hoped that the publication presented here, together with the others being produced under the aegis of the NUSS programme, will be of use in this task.

STATEMENT by the Senior Advisory Group

The Agency's plans for establishing Codes of Practice and Safety Guides for nuclear power plants have been set out in IAEA document GC(XVIII)/526/Mod.1. The programme, referred to as the NUSS programme, deals with radiological safety and is at present limited to land-based stationary plants with thermal neutron reactors designed for the production of power. The present publication is brought out within this framework.

A Senior Advisory Group (SAG), set up by the Director General in September 1974 to implement the programme, selected five topics to be covered by Codes of Practice and drew up a provisional list of subjects for Safety Guides supporting the five Codes. The SAG was entrusted with the task of supervising, reviewing and advising on the project at all stages and approving draft documents for onward transmission to the Director General. One Technical Review Committee (TRC), composed of experts from Member States, was created for each of the topics covered by the Codes of Practice.

In accordance with the procedure outlined in the above-mentioned IAEA document, the Codes of Practice and Safety Guides, which are based on documentation and experience from various national systems and practices, are first drafted by expert working groups consisting of two or three experts from Member States together with Agency staff members. They are then reviewed and revised by the appropriate TRC. In this undertaking use is made of both published and unpublished material, such as answers to questionnaires, submitted by Member States.

The draft documents, as revised by the TRCs, are placed before the SAG. After acceptance by the SAG, English, French, Russian and Spanish versions are sent to Member States for comments. When changes and additions have been made by the TRCs in the light of these comments, and after further review by the SAG, the drafts are transmitted to the Director General, who submits them, as and when appropriate, to the Board of Governors for approval before final publication.

The five Codes of Practice cover the following topics:

- Governmental organization for the regulation of nuclear power plants
- Safety in nuclear power plant siting
- Design for safety of nuclear power plants
- Safety in nuclear power plant operation
- Quality assurance for safety in nuclear power plants.

These five Codes establish the objectives and minimum requirements that should be fulfilled to provide adequate safety in the operation of nuclear power plants.

The Safety Guides are issued to describe and make available to Member States acceptable methods of implementing specific parts of the relevant Codes of Practice. Methods and solutions varying from those set out in these Guides may be acceptable, if they provide at least comparable assurance that nuclear power plants can be operated without undue risk to the health and safety of the general public and site personnel. Although these Codes of Practice and Safety Guides establish an essential basis for safety, they may not be sufficient or entirely applicable. Other safety documents published by the Agency should be consulted as necessary.

In some cases, in response to particular circumstances, additional requirements may need to be met. Moreover, there will be special aspects which have to be assessed by experts on a case-by-case basis.

Physical security of fissile and radioactive materials and of a nuclear power plant as a whole is mentioned where appropriate but is not treated in detail. Non-radiological aspects of industrial safety and environmental protection are not explicitly considered.

When an *appendix* is included it is considered to be an integral part of the document and to have the same status as that assigned to the main text of the document.

On the other hand *annexes, footnotes, lists of participants and bibliographies* are only included to provide information or practical examples that might be helpful to the user. Lists of additional bibliographical material may in some cases be available at the Agency.

A list of relevant *definitions* appears in each book.

These publications are intended for use, as appropriate, by regulatory bodies and others concerned in Member States. To fully comprehend their contents, it is essential that the other relevant Codes of Practice and Safety Guides be taken into account.