

Module 1

INTRODUCTION TO THE COURSE

OBJECTIVES

At the completion of this course, the candidate will:

- 1.1 Understand the contribution to *nuclear safety management* of corporate policy and organization, well designed and maintained safety related systems, managerial methods, work programs and practices, approved procedures, and training and qualification. Understand the contribution of the above, and personal perceptions and beliefs about nuclear safety, to *safety culture*.
- 1.2 Understand the importance to nuclear safety of the *defense in depth* philosophy, and the Control Room Operator and Shift Supervisor roles in maintaining *defense in depth* in reactor operations.
- 1.3 Understand the importance and use of the *control, cool and contain* philosophy in prioritizing, directing and imposing constraints on NPP operations and maintenance.
- 1.4 Recognize and understand the importance of the Control Room Operator and Shift Supervisor roles and responsibilities which support nuclear safety and compliance with regulatory constraints.
- 1.5 Understand the purpose of various regulatory and operating documents and the relationships of those documents to the licensing process.
- 1.6 Understand the need for and importance of approvals and authorizations for maintenance, changes, and critical operations.
- 1.7 Recognize areas of reactor operation and maintenance which affect licensing terms and conditions.
- 1.8 Understand the significance of Operating Experience and performance reporting to nuclear safety.

NOTES AND REFERENCES

Audience and Prerequisites

This course in the principles of nuclear safety is designed for authorization candidates in training for the positions of Control Room Operator and Shift Supervisor. It is intended to be taken early in the authorization training program. This course is also intended for training Technical and Engineering Support staff.

This course assumes a basic knowledge of CANDU plant process and safety systems, such as presented in the *Introduction to CANDU* course, or level 4 station systems courses.

Course structure and content

The course content was derived by an inter-utility development team, and does not favour any particular CANDU station. Operating practices discussed are typical of any CANDU station. Station specific differences are mainly left for the station *Specifics* program.

Each of the remaining 17 course modules begins with a list of learning objectives, continues with the instructional text, and concludes with a list of assignment questions. For the reader's convenience, the objectives have been cross-referenced to the text, and the text to the objectives, in the page margins.

Shift Supervisor (SS) candidates are responsible for all course objectives, whereas Control Room Operator (CRO) candidates are responsible only for those objectives labelled **CRO** to the left of the objective. Despite their reduced accountability, CROs will benefit from sitting in on the whole course.

Key concepts are frequently highlighted in the instructional text, and are repeated in *Summaries Of Key Concepts*.

Occasionally, the instructional text is supplemented with a side note placed in the ruled page margin. Side notes are cross-referenced to the text via asterisk (*). Typically, side notes specify references to other sections of the course, or to other courses. Some side notes provide supporting information, such as the typical value of the operating parameter being discussed in the instructional text.

It is strongly recommended that candidates complete the assignment questions as one method of developing mastery of the subject matter. Another excellent learning stratagem is for candidates to fabricate additional questions of their own, and answer them.

* This is an example of a side note.

Contributing authors

1990 Edition: J. Grava
D. Gould
G. Jaeger
G. Matthews

1996 Edition: JC Amrouni
D. Bieman
L. Haacke

Reviewers

The authors wish to thank the following, who reviewed the 1996 edition in whole or in part:

Bruce A: J. Low
Bruce B: J. Hilbig
Darlington: R. Basserman; J. Plourdes
Pickering: K. Noonan; J Noakes
RSOAD: D. Mosey
NSD: T. Farr
PLNGS R. Wardman
WNTD A. Garg