

INTRODUCTION

The Westinghouse AP1000 Technology Manual is provided as a text and reference document to supplement the materials presented in the Westinghouse AP1000 Technology Course (R-107P). The material in the manual will provide the major source of information during the presentation of the course and should be used by the students as a study guide during attendance at this course.

The Westinghouse AP1000 Technology Manual discusses the Westinghouse AP1000 Pressurized Water Reactor technology in general, and discusses the differences between the AP1000 and the currently operating Westinghouse PWR designs.

The materials presented in the manual are provided in sufficient detail that, when combined with the corresponding classroom presentations, the student should obtain a level of understanding of the materials presented to knowledgeably discuss the Westinghouse AP1000 advanced pressurized water reactor design. Setpoints, where given, are typical values provided to enhance the understanding of system design and operations.

The information in this manual was developed or compiled for NRC personnel in support of internal training and qualification programs. No assumptions should be made as to its applicability for any other purpose. Information or statements contained in this manual should not be interpreted as setting official NRC policy. The data provided are not necessarily specific to any particular nuclear power plant, but can be considered to be representative of the vendor design.

This manual may contain design and operational information possibly considered "Proprietary" by certain companies that design and supply the components and systems for nuclear facilities. This manual was developed strictly for the use of NRC personnel during training and for subsequent reference purposes and should not be distributed outside of the NRC.

COURSE OBJECTIVES (R-107P)

The Westinghouse AP1000 Technology Course is designed to provide the student with a general familiarity with the mechanical, instrumentation and control, and protective systems of the Westinghouse AP1000 design. At the end of this course each student should have achieved a basic understanding of the following:

- Major design differences between the AP1000 and currently operating Westinghouse PWRs,
- Functions and flow paths of major mechanical systems, and
- Process instrumentation systems, including inputs and control and protection functions.

**COURSE OUTLINE
FOR R-107P**

| Day | Title | Chapter |
|-----|--|--|
| 1 | Course Introduction AP1000 Plant Overview Reactor Core and Vessel Design Reactor Coolant System Passive Core Cooling System Containment Structure Passive Containment Cooling System | 1 2 3 4 5.1 5.2 |
| 2 | Normal Residual Heat Removal System Cooling Water Systems Chemical and Volume Control System Main Control Room HVAC Instrument and Control Systems Electrical Systems Main Steam Supply System Condensate and Feedwater Systems Startup Feedwater System Balance of Plant Systems | 6.1 6.2 6.3 6.4 8 9 7.1 7.2 7.3 7.4 |