1.0 Introduction and General Description of Plant

1.1 Introduction

1.1.1 Format and Content

Tier 2 is written in accordance with Regulatory Guide (RG) 1.70. For consistency with NUREG-0800, Tier 2 includes Section 15.8, which addresses anticipated transients without scram (ATWS), and Chapter 18, which addresses human factors. In addition, GE's response to TMI related matters is presented in Appendix 1A. Appendix 1C describes the ABWR station blackout considerations.

GE's response to the severe accident policy statement is provided in Chapter 19 of Tier 2. The STPNOC response to the aircraft impact rule is provided in Tier 2, Appendix 19S. Chapter 20 is included to provide a Question and Response guide. Chapter 21 provides the engineering drawings.

1.1.2 ABWR Standard Plant Scope

The ABWR Standard Plant includes all buildings which are dedicated exclusively or primarily to housing systems and the equipment related to the nuclear system or controls access to this equipment and systems. There are five such buildings within the scope of the ABWR Standard Plant:

(1) Reactor Building (including containment)

(2) Service Building

(3) Control Building

(4) Turbine Building

(5) Radwaste Building

In addition to these buildings and their contents, the ABWR Standard Plant provides the supporting facilities shown in Figure 1.2-1. A detailed listing of structures and systems for the ABWR Standard Plant scope of design is provided in Table 3.2-1.

The ABWR evolutionary design provides an essentially complete nuclear power plant except for site-specific elements. The site-specific elements are included as representative conceptual designs with interface requirements sufficient for the final safety analysis and design-specific probabilistic risk assessment in accordance with 10CFR52.47(a) (1) (vii) and (b) (1). Unless otherwise noted, the following site-specific elements are outside the scope of the ABWR Standard Plant:

(1) Ultimate heat sink (9.2.5), interfaces with reactor service water (spray pond, conceptual)

(MPL) No. 18NS07A03*. This MPL is a controlled list, structured by system, which contains the identification of hardware and software documentation that defines the ABWR Standard Plant.

1.1.4 Design Process

GE and its associates control the review and approval of ABWR Common Engineering design documents with a procedure using the Engineering Review Memorandum (ERM). Evidence of design verification is entered into the design records of the responsible design organization. For engineering documents prepared uniquely by GE for the U.S. ABWR, changes to engineering documents are entered into the GE design record files. The design process for the STPNOC response to the aircraft impact rule is fully described in the STP 3 & 4 Quality Assurance Program Description, which is provided in Tier 2, Subsection 17.1.19. A COL applicant will establish the design, including the supporting detailed design documentation, consistent with the design control document referenced in the certified design rule. See Subsection 1.1.11.1 for COL license information requirements.

1.1.5 Type of License Required

Tier 2 is submitted in support of the application for design certification (DC) for the ABWR Standard Plant.

1.1.6 Number of Plant Units

For the purpose of this document, only a single standard plant will be considered.

1.1.7 Description of Location

This plant can be constructed at any location which meets the parameters identified in Chapter 2.

1.1.8 Type of Nuclear Steam Supply

This plant will have a boiling water reactor (BWR) nuclear steam supply system (NSSS) designed and supplied by GE and designated as ABWR.

1.1.9 Type of Containment

The ABWR will have a low-leakage containment vessel which comprises the drywell and pressure suppression chamber. The containment vessel is a cylindrical steel-lined reinforced concrete structure integrated with the Reactor Building. The containment nomenclature is specified in Figure 1.1-1.

* GE proprietary