1.0 Introduction and General Description of Plant

1.1 Introduction

1.1.1 Format and Content

The Lungmen Nuclear Power Station (NPS) Preliminary Safety Analysis Report (PSAR) is written in accordance with Regulatory Guide (RG) 1.70. For consistency with NUREG-0800, the PSAR 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 1D describes the Lungmen NPS station blackout considerations. Chapter 19, 20 and Appedices A through E are additional Lungmen NPS PSAR specific requirements.

1.1.2 Lungmen NPS Scope

The Lungmen NPS 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. Buildings included within the scope of the Lungmen NPS are:

(1) Reactor Buildings (including containment)

(2) Access Control Building

(3) Control Buildings

(4) Turbine Buildings

(5) Radwaste Building

(6) Auxiliary Fuel Building

(7) Service Water Intake Building

(8) Switchgear Building

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

1.1.3 Engineering Documentation

Engineering documentation for the Lungmen NPS is electronically based as part of the Information Management System (IMS). This system includes a central repository for storage of project documents and related information in electronic format rather than as paper documents. More information will be provided in the FSAR.

1.1.4 Design Process

The Lungmen NPS is being designed by a group including GE Nuclear Energy (GENE), Stone and Webster Engineering Company (S&W), and Mitsubishi Heavy Industries (MHI). Taiwan Power Company (TPC) maintains control and oversight of the design engineering process.

GENE and their associates are responsible primarily for the design of the Nuclear Steam Supply System (NSSS). GE Nuclear Energy controls the review and approval of the design documents using the Engineering review Memorandum (ERM). Evidence of design verification is entered into the design records of the responsible design organization. The GENE Quality Assurance organization periodically reviews the design process to verify that the procedures are being followed and the appropriate records maintained.

Control of the design and review process of other major designers is carried under their own design and Quality Assurance Programs

1.1.5 Type of License Required

The Lungmen NPS will be licensed under the two step process. The PSAR is submitted in support of a construction permit (CP) for 2 units.

1.1.6 Number of Plant Units

The Lungmen NPS is a two unit facility.

1.1.7 Description of Location

The Lungmen NPS site is located on the northeastern coast of the island of Taiwan, at an approximate longitude of 121° 55’ E and latitude of 25° 03’ N. It is about 20 km southeast of Keelung city and 40 km east of Taipei. The Lungmen NPS site is located 1.5 km south of Aoti Village and 3 km northwest of Fulung Beach.

The Lungmen NPS site is located along the coast and approximately 68% of the area within a 50 km radius of the site is open water.

1.1.8 Type of Nuclear Steam Supply

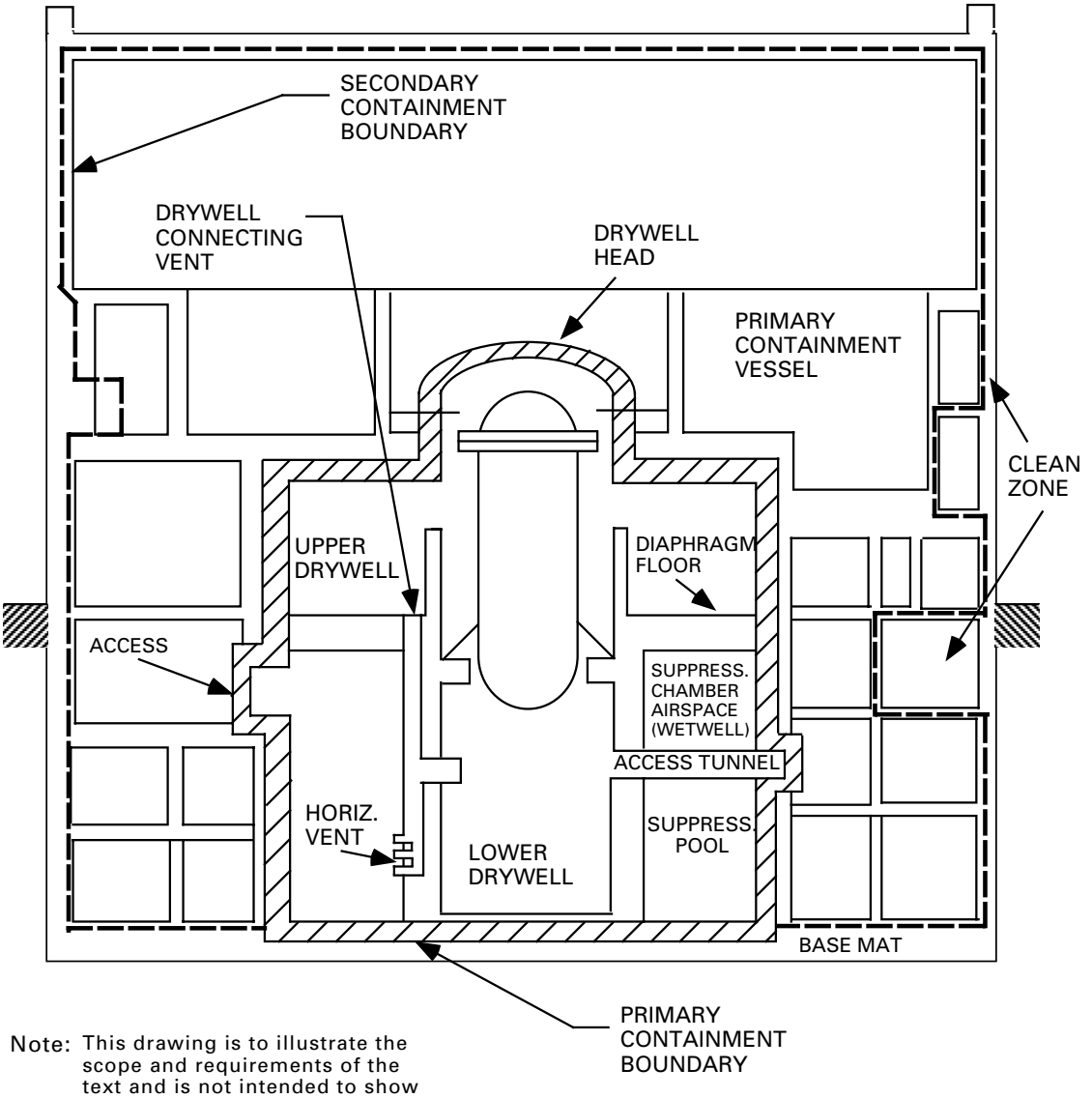
This plant will have a boiling water reactor (BWR) NSSS designed and supplied by GE and designated as ABWR.

1.1.9 Type of Containment

The Lungmen NPS will have a low-leakage primary containment vessel which is comprised of the drywell and pressure suppression chamber. The containment vessel is a cylindrical steel-lined reinforced concrete structure integrated with the Reactor Building. The reactor building provides a secondary containment around the primary containment vessel. The containment nomenclature is specified in Figure 1.1-1.

1.1.10 Core Thermal Power Levels

The information presented in the PSAR, unless otherwise noted pertains to one reactor unit with a rated power level of 3926 MWt and a design power level of 4005 MWt. The station utilizes a single-cycle, forced-circulation BWR. The heat balance for rated power is shown in Figure 1.1-2. The station is designed to operate at a gross electrical power output of approximately 1371 MWe and net electrical power output of approximately 1300 MWe.



Note: This drawing is to illustrate the scope and requirements of the text and is not intended to show the final detail of the design.

Figure 1.1-1 Lungmen NPS Nomenclature

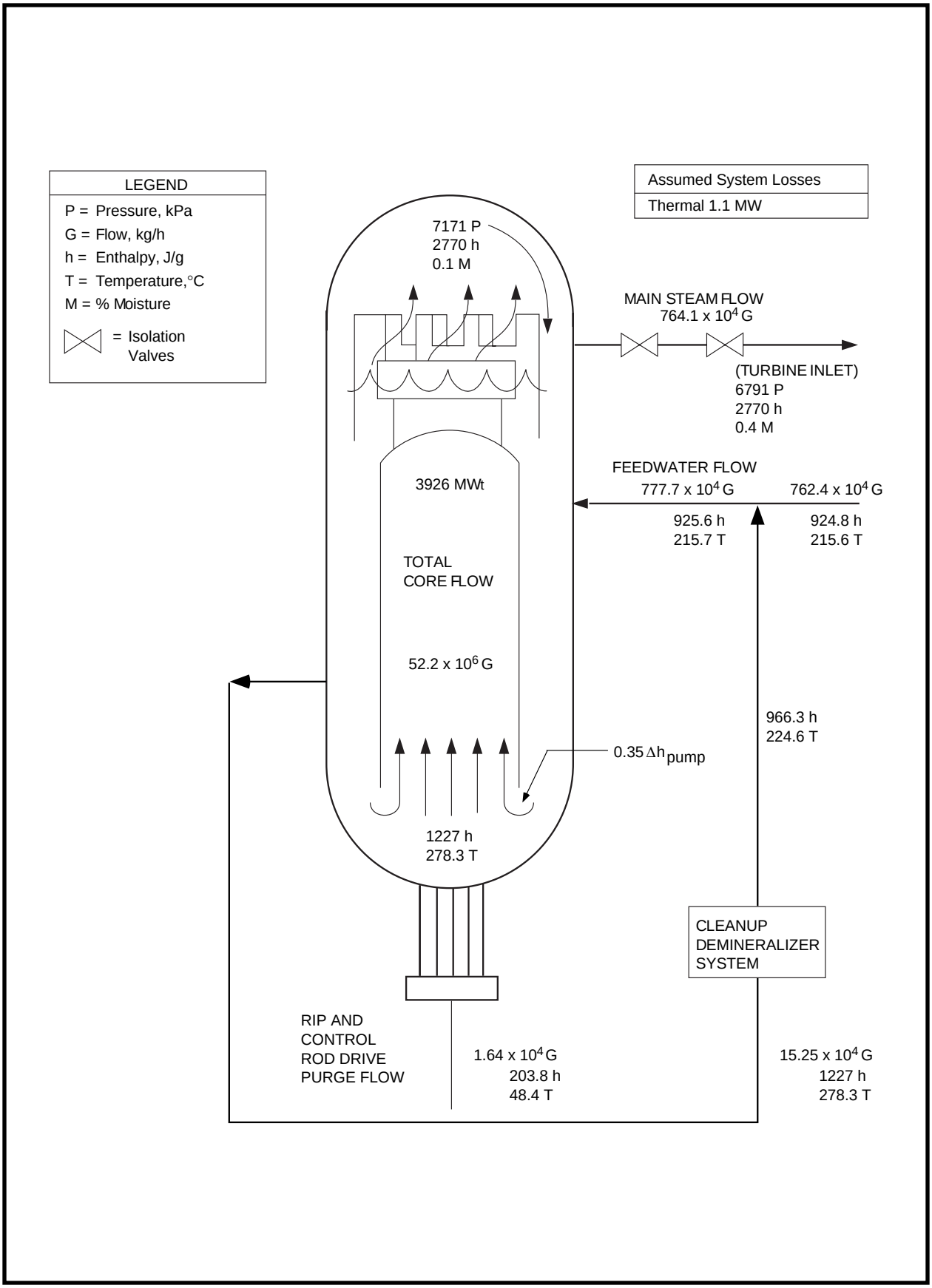


Figure 1.1-2 Heat Balance at Rated Power