2.0 Site Characteristics

2.6.2 Water Level (Flood) Design Site Parameters

2.6.2.1 Introduction

ABWR DCD Tier 2, Section 2.1 provides site parameters (including groundwater levels), which are requirements for site acceptability that must be met by COL applicants who reference the ABWR design. Section 2.3.2.34 of the DCD provides information related to the hydrostatic groundwater pressures acting on plant safety-related facilities.

2.6.2.2 Regulatory Criteria

GEH proposed changes (ADAMS Accession No. ML15236A226) to address Item #4 of the NRC letter dated July 20, 2012, which suggested that the applicant consider (1) addressing the significance of design basis maximum groundwater level in the hydrology section and its allowable margin if any, (2) identifying where this parameter is used, and (3) if feasible, setting the design basis maximum groundwater level at site grade. The applicant addressed this item by adding a reference in Tier 2, Chapter 2 of the ABWR DCD as the basis for the Standard Plant Site Design Parameter of "Maximum Ground Water Level" listed in Table 2.0-1. The applicant did not change the existing groundwater level site parameter from the originally certified design, but rather clarified the basis for the site parameter. Therefore, this change is a "modification," as that term is defined in Chapter 1 of this supplement, and will correspondingly be evaluated using the regulations applicable and in effect at the initial ABWR certification. The clarification was evaluated using 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 2, which requires that structures, systems, and components important to safety must be designed to withstand the effects of natural phenomena such as floods and high groundwater, and 10 CFR 52.47(a)(1)(iii), which requires site parameters postulated for the design, and an analysis and evaluation of the design in terms of those site parameters. The acceptance criteria for site specific limits imposed on maximum groundwater level are given in DCD Table 2.0-1 as 61 cm (2.0 ft) below grade. The staff reviewed the modification related to the maximum groundwater level site parameter against the acceptance criteria of NUREG–0800, Section 3.4.2, Revision 2.

2.6.2.3 Summary of Technical Information

GEH revised ABWR DCD, Revision 6, Tier 2, Section 2.0 and Table 2.0-1. The applicant stated that the groundwater level is used in determining the at-rest soil pressure and hydrostatic pressure on buildings and below grade exterior walls. As applicable, it is also used in determining the shear wave and compression wave velocity of soil which are used in the performance of the soil-to-structure interaction analysis. GEH added a reference to Section 2.0 and modified a footnote in Table 2.0-1 to reflect that the "Maximum Ground Water Level" and "Maximum Flood (or Tsunami) Level" site parameters are based on technical requirements in the Electric Power Research Institute (EPRI) Utility Requirements Document (URD) that have been agreed to by the industry and found acceptable by the NRC (NUREG–1242). The applicant noted that changing the DCD groundwater level to site grade would not be possible without impacting analyses in ABWR DCD Appendices 3A "Seismic Soil Structure Interaction Analysis" and 3H "Design Details and Evaluation Results of Seismic Category I Structures".

2.6.2.4 Technical Evaluation

The proposed modifications to the ABWR DCD described above do not revise groundwater or flooding analyses previously reviewed and found acceptable by the NRC staff and do not affect any previous staff findings of regulatory compliance or reasonable assurance of adequate protection of public health and safety related to the ABWR design. Therefore, the staff finds that the applicant's proposed changes to DCD Tier 2, Table 2.0-1 and the addition of Section 2.0.2 "References" have no safety significance and, that these changes remain within the acceptance criteria of NUREG–0800, Section 3.4.2, Revision 2.

2.6.2.5 Conclusion

The staff reviewed the proposed changes to ABWR DCD Tier 2, Section 2.0 and Table 2.0-1 included in Revision 6 of the ABWR DCD that clarified the basis for the maximum groundwater and flood (or tsunami) level site parameters and determined that the changes conform to all applicable acceptance criteria as referenced in NUREG–0800, Section 3.4.2 and to 10 CFR Part 50, Appendix A, GDC 2, and 10 CFR 52.47(a)(1)(iii).