

#### 2.5.4.8.7 Liquefaction Potential Evaluations for CEUS SSC

The soils under the Nuclear Island will be excavated and backfilled with RCC; therefore, no liquefaction potential exists under the Nuclear Island foundation.

For design basis evaluations of liquefaction potential of soils under the adjacent Annex, Turbine and Radwaste Buildings, earthquake-induced cyclic stresses in the soil column were based on ground motions computed for the PBSRS profile using the updated EPRI-SOG model. The associated PGA at the finished grade elevation is 0.118g (Table 2.5.4.8-201) and is based on the surface hazard curves computed without CAV. The PGA at the finished grade elevation computed without CAV using the CEUS SSC model is 0.091g. As the computed equivalent cyclic shear stresses are proportional to the PGA at the finished grade, the equivalent cyclic shear stresses based on the CEUS SSC model would be lower than those computed based on the updated EPRI-SOG model.

Therefore, the liquefaction evaluations based on the updated EPRI-SOG LNP ground motions bound those from the CEUS SSC ground motions.

For site specific seismic margins evaluation presented in Subsection 19.55.6.3, liquefaction potential of soils under the adjacent Annex, Turbine and Radwaste Buildings, earthquake-induced cyclic stresses in the soil column, based on ground motions consistent with the updated EPRI-SOG finished grade  $10^{-5}$  UHRS, were used. As shown in Figures 3.7-228 and 3.7-229, 1.67\*GMRS and 1.67\*PBSRS developed using the CEUS SSC methodology and modified CAV filter are enveloped by the updated EPRI-SOG finished grade  $10^{-5}$  UHRS.

Furthermore, the PGA for the  $10^{-5}$  PBSRS profile surface motions computed without CAV using the CEUS SSC model are lower than those computed using the updated EPRI-SOG model. Thus, the High Confidence Low Probability of Failure (HCLPF) capacity for no liquefaction potential of soil under the Annex, Turbine, and Radwaste Buildings exceeds the 1.67\*GMRS goal for the plant level HCLPF for the CEUS SSC ground motions.

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