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2.5.5 Stability of Slopes

2.5.5.1 Review of Existing Slopes

The location of VEGP Units 3 and 4 will be atop a bluff on the southwest bank of the Savannah River. The new units will be located to the west of the existing Units 1 and 2 as described in Section 1.2. The ground is flat to gently rolling and at approximately the same grade elevation of the existing units (220 ft msl). There are no existing slopes or embankments near the proposed location of Units 3 and 4; therefore, no dynamic slope stability analysis was performed for VEGP Units 3 and 4.

2.5.5.2 New Slopes

There is no planned permanent slope that would adversely affect, either directly or indirectly, any of the safety-related structures that would be built for the new AP1000 Units 3 and 4. Site grading for construction of the new units would result in non-safety-related permanent cut and fill slopes. Permanent cut slopes would have heights of the order of 50 feet or less, and would be located to the north and west of the new switchyard area, several hundred feet away from planned or existing safety-related structures. Permanent fill slopes would have heights of the order of 20 ft or less, and would be located to the south and west of the new cooling tower area, several hundred feet away from planned or existing safety-related structures.

Construction excavation cut slopes would be required in the new AP1000 power block area where soils above the Blue Bluff Marl would be removed and replaced with compacted structural fill. The construction excavation cut slopes would be temporary during the construction period only. Also, these excavation slopes would be sufficiently far away from the existing VEGP Unit 1 and 2 safety-related structures, and therefore, would not adversely affect, directly or indirectly, any of the existing safety-related structures.

The proposed permanent non-safety-related slopes will be analyzed for dynamic and static conditions during the design stage. The minimum acceptable factors of safety against stability failure of permanent slopes are 1.5 for long-term static conditions and 1.1 for long-term seismic conditions (USACE 2003). The construction excavation cut slopes will be analyzed for static conditions during the design stage. The minimum acceptable factor of safety against stability failure of excavation slopes is 1.3, based on what was used for Units 1 and 2. These analyses will be performed to ensure that these slopes will not pose a hazard to the public. Such analyses are not part of the ESP SSAR.

Section 2.5.5 References

(USACE 2003) U. S. Army Corps of Engineers, *Engineering and Design — Slope Stability*, EM 1110-2-1902, Office of the Chief of Engineers, Dept. of the Army, 2003.