Typical water depths are about 1300 m landward from the escarpment and drop to about 2100 m seaward from the escarpment. For this study, NGI performed deterministic and probabilistic assessments of deep-seated slope failure for some of the most critical cross sections.

The prospect is located at the main geological feature along the Sigsbee escarpment in the Gulf of Mexico. On assignment from BP, NGI made assessments of deep-seated slope failure for critical cross sections.
For the deterministic analysis, undrained and drained factors of safety against slope failure were estimated considering all possible triggers. Retrogressive failure was also considered in the analysis. For the probabilistic analysis, the first-order reliability method (FORM) was used based on the results of the deterministic slope stability assessment. Annual probability of slope failure under both drained and undrained conditions was estimated for all triggering mechanisms considered.

Earthquake-induced slope failure assessment was also carried out both deterministically and probabilistically using the 2D finite element method since an earthquake is selected as the most critical triggering mechanism in the study area.

As part of the final results, a geohazard/zonation map was developed based on the results of the analysis that was intended to use when selecting the locations of subsea structures for the development project along the escarpment.