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Located southeast of downtown Tampa, Florida, the C. W. Bill Young Reservoir is a 15.5 billion gallon earthen embankment reservoir supplying water to the area's 2.4 million residents. During the wet season, water from surrounding rivers is stored to allow for withdrawals during the dry season—greatly reducing the area's dependence on Florida's waning groundwater.

The embankment dam is approximately 5 miles in length with an average height of 50 feet. Tampa Bay Water began operating the reservoir in 2005; however, in 2006 sizable cracks began to appear in the soil-cement erosion protection layer on the upstream slope. The reservoir was eventually taken offline in 2012 to prepare for the renovation of the upstream slope.

After subsurface investigations and an extensive design process, an upstream solution was constructed. This renovation included removing and replacing the original HDPE liner with a PVC liner and constructing a robust soil-cement erosion protection system. The chosen PVC liner was Sibelon® 2CNT 3300, an 80 mil (2mm) PVC geomembrane with a geotextile layer heat-bonded onto the top and bottom sides of the liner. This geotextile layer was included in order to accommodate the required friction angle of the earthen embankment below and the gravel drainage layer above. Overlying the liner, the soil-cement was designed to provide a minimum of 50 years of erosion protection for the reservoir.

Construction of the upstream renovation began in 2013 and was completed in 2014, with the reservoir being placed back into operation by the end of 2014. Over the last few years the reservoir has been frequently monitored for dam safety. This presentation will explore renovation design features and the monitoring findings to date, including the soil-cement erosion protection system and the reduction in seepage flow observed surrounding the reservoir.