



◆ Executive Summary

S&ME is supporting New-Indy in the design and permitting of an on-site, in-place sludge closure in the area of Sludge Lagoon No. 4 at the Catawba Mill in South Carolina. Sludge slopes of 5 percent, 10 percent, and a hybrid are currently being considered by S&ME and New-Indy. In 2019, S&ME evaluated the stability of the proposed 5 percent and 10 percent sludge sloping cases (*S&ME Subsurface Exploration and Preliminary Stability Analysis – New-Indy Sludge Lagoon 4 dated August 8, 2019*); this study addressed the placement and internal stability of the sloping sludge. The 2019 study did not address the stability of the Sludge Lagoon No. 4 embankment relative to the proposed construction. This current study addresses the long-term, steady-state seepage and short-term seismic loading conditions on the embankment, which is to be left in-place during and after closure.

This study consisted of geotechnical exploration/analysis as it relates to the present-day Sludge Lagoon No. 4 embankment. Slope stability and seismic analyses were performed as part of this study to evaluate the stability of the perimeter earthen embankment surrounding Sludge Lagoon No. 4 under design earthquake and long-term, steady-state conditions. Basin sludge grades of 5 percent and 10 percent scenarios were considered in the analysis. Overall, based on our exploration and analysis, factors of safety met or exceeded minimum industry standards for the scenarios evaluated. However, a local seepage and erosion condition was observed along the downstream eastern embankment toe. The local seepage and erosion condition should be repaired by placing a weighted filter overlay along the downstream slope and toe. S&ME recommends the following to properly address the condition:

- Submission and approval of a Dam Modification/Repair Plan to/from the South Carolina Department of Health and Environmental Control (SC DHEC).
- Implementation of the repair plan, which would include construction of a weighted filter overlay. The repair should be implemented in the localized area plus an additional lateral distance on all sides.
- Further monitoring of the area.

In addition to performing the repair mentioned above, S&ME recommends the performance of additional field investigation and research as it relates to the apparent toe drain outlet areas along the downstream embankment along the Catawba River. After review of historical records, the as-built conditions of the apparent toe drains were not apparent to S&ME.

The results and recommendation herein do not supersede the 2019 report by S&ME. This study should be considered a supplemental information as it pertains to the closure design activities.