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## CALVERT CLIFF NUCLEAR POWER PLANT UTILIZES TRENCHLESS TECHNOLOGIES UNDER EXTREME AND CHALLENGING CONDITIONS

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**ABSTRACT:** Calvert Cliff Nuclear Power Plant, a Constellation Energy facility, is located outside of Prince Frederick, Maryland. The site was originally developed by excavation of a hillside adjacent to the Chesapeake Bay about 35 years ago. Surrounding the entire site is a critical subsurface drain system, made from tar coated 15 inch CMP, which was designed to relieve hydrostatic pressure from backing-up behind the facility and to ensure that ground water is diverted away from critical foundations, tunnels and utilidors. Due to tidal influences, site subsidence, and imposed screen wash loading, the subsurface drain pipe system failed resulting in significant sink holes above and adjacent to the CMP drain pipe.

This paper describes the investigation process and the work completed by the contractor which utilized a combination of extensive cleaning and hydro excavation, pipe bursting, slip lining, CIPP, and pressure grouting, as well as pilot tube microtunneling and manhole placement. To the knowledge of the contractor and owner, this is the first time pilot tube microtunneling has ever been used in a nuclear power plant.

The extreme and challenging conditions faced by the contractor included excessive groundwater; constant ingress of pea-gravel and sand; and rigid grade and alignment requirements, while operating at depths of 50 feet.

This project is noteworthy, unique and groundbreaking because of the combination of trenchless methods used, the confluence of safety, security, client oversight, the critical and mandatory completion date, and the significant cost savings realized through the use of trenchless technologies rather than conventional construction methods.