

Application NAB-2007-08123-M05
Response to U.S. Army Corps of Engineers Information Request Dated 01/16/09
Calvert Cliffs 3 Project, LLC and UniStar Nuclear Operating Services, LLC
February 12, 2009

Question 7

Provide justification for utilizing the installed-dredged trench technique rather than horizontal directional boring (HDB) of discharge pipe. Can directional bore be used if pipe is installed deeper. (e.g. U shaped tunnel). Compare trenching vs. HDB for construction. Describe sheet pile pit (e.g. size, materials, temporary or permanent).

RESPONSE

The outfall design includes a 30" diameter HDPE discharge pipe with three 16" single port diffusers terminating approximately 550' from the shoreline. The proposed installation method includes dredging a trench and lowering the pipe into the dredged trench and backfilling the pipe with the in-situ material and placing stone armor, or rip rap protection around the diffuser section.

In an attempt to avoid dredging in this area the trenchless technique of directional drilling has been evaluated. Directional drilling is commonly used for crossing beneath open waters and this approach is generally used from shoreline to shoreline and not terminating within the body of water. To terminate an installation within a body of water using this technique, would result in drilling fluids (used to keep the bore open) escaping into the open water, once the drilling operation reaches the exit point. Additionally, due to the nature of the soils in this area, the depth of the pipe would need to be kept well below the bay bottom. This particular installation is further complicated by the arrangement of the outlet which requires installation of a 90-degree bend and the three port diffusers. In other words, directional drilling works well for straight point to point installations, but does not facilitate the installation of bends which would need to be installed underwater, after the straight portion of the outfall has been installed.

The proposed installed - dredged trench is anticipated to take approximately 1 month and only requires divers for inspection of the outfall alignment and placement of stone protection around the outfall. HDB is anticipated to take approximately 4 months and requires a more extensive use of diving teams to complete the installation and final inspections. In addition to the added cost and schedule, the technical risk and personal safety concerns increase significantly with the HDB approach versus the installed-dredged trench approach.