

Project Name: St. Croix Mooring

Author: Tony Parisi

Organizations/People Involved:

FPO-1: LCDR Parisi, LT Samuels, Dave Raecke, Andy Kurtz, Bill Seelig

UCT ONE: LCDR Seltzer, BUCS(MDV) Hierholzer

SEACON

Date: 1985

Project Summary:

The pier at Frederiksted, St. Croix, USVI was used for berthing naval vessels in order to attach equipment in conjunction with the use of the Underwater Tracking Range (UTR). It was badly damaged by Hurricane Klaus in November 1984, and the Commander, Submarine Force Atlantic (COMSUBLANT) tasked CHESDIV FPO-1 with installation of a mooring in the Frederiksted area to be used while the pier was being repaired.

FPO-1 designed a three-legged mooring using Propellant Embedment Anchors (PEAs) instead of the standard drag anchors. Each leg consisted of 2 1/4-inch chain attached to the ground ring at the center of the mooring and the downhaul cable at the anchor end. Each leg contained a swivel and three in-line zinc anodes. A critical factor in the design was the shoreward extent of the watch circle, determined by the draft of the vessels and possible storm surge. That meant there was a 20-foot tolerance for the location of the anchors.

Because the mooring is designed to take both surface ships (CGN-38 VIRGINIA Class) and submarines (SSBN-616 LAFAYETTE Class), a special buoy was procured. The buoy is structural foam coated with a tough, polyurethane elastomer to protect submarines from rubbing damage. FPO-1 worked with Seaward International, Inc to pioneer the development of resilient foam-filled mooring buoys for fleet moorings, and this was the first time a buoy of this type was used for a Navy mooring.

SEACON was towed to NAVSTA Roosevelt Roads where it was met by the UCT ONE and FPO-1 team. After mobilization, SEACON transited to St. Croix for the installation.

Navigation for the location of marker buoys was accomplished using theodolites. Divers from UCT ONE then installed the marker buoys, keeping within the 20-foot tolerance. SEACON was positioned and the PEAs were fired. Pull tests of 50 kips conducted after all three were installed. After each PEA was fired, UCT ONE divers inspected the anchors while SEACON moved toward the next site. They carefully inspected the wire rope near the crater to determine whether or not the pendant was damaged during firing. They also took measurements from the point of penetration to the first fitting to determine the depth of penetration.

SEACON was then used to deploy the mooring buoy assembly and connect all three legs to it. Once the mooring was completed, SEACON transited back to Roosevelt Roads for demobilization, and was then towed back to Fort Lauderdale.

Project Report Link:

Saint Croix Mooring Project Execution Plan – ADA168494

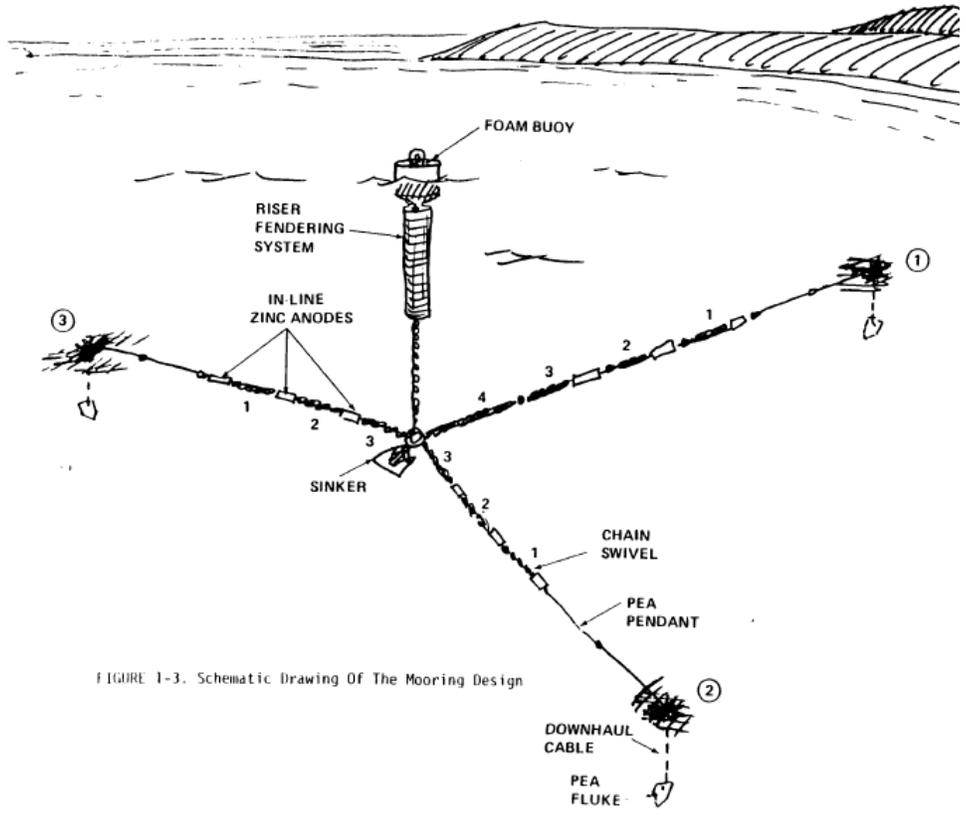
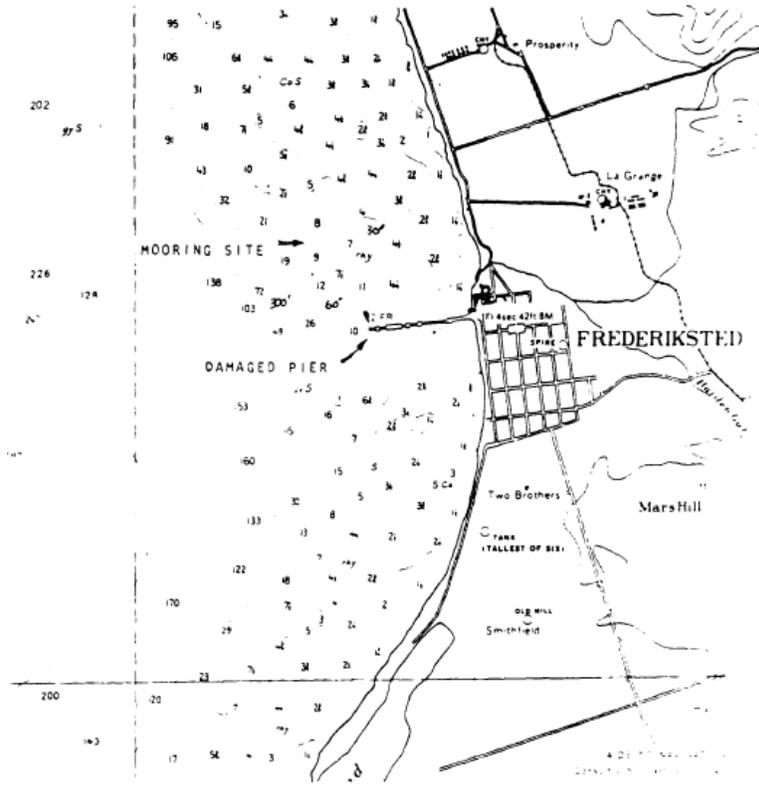


FIGURE 1-3. Schematic Drawing Of The Mooring Design