

Project Name: Charleston Tactical Aircrew Combat Training System (CTACTS)

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Organizations/People Involved:

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Date: 1985-1986

Project Summary:

In the early 1980s, extensive Air Combat Maneuvering (ACM) training was conducted on sea ranges and airspace warning areas W-133/W-134 and W-157A/W-I58C using training missiles and guns against drones and towed targets. Targets did not simulate true air combat conditions, whereby targets take all evasive action capable of high-performance aircraft. These were not instrumented air spaces and therefore training was limited since no scoring or post mission reconstruction was possible.

FY-86 MILCON project P210 (\$26.3M) authorized construction of eight towers offshore of Georgia to enable the Tactical Aircrew Combat Training System (TACTS) to accurately monitor and control aircraft during aerial warfare training exercises from sea level to 60,000 feet. TACTS include four major subsystems: Aircraft Instrumentation Subsystem (AIS), Tracking Instrumentation Subsystem (TIS), Control and Computation Subsystem (CCS) and Display and Debriefing Subsystem (DDS).

FPO-1 was responsible for the design and construction of the CTACTS offshore towers, and the Naval Air Systems Command provided the facility requirements. FPO-1 contracted with Brown & Root Development Inc. (B&R) as the prime A-E. B&R used Ocean Weather for meteorological and oceanographic work, and McClelland Engineers, Inc. for geophysical and geotechnical work. Also, under contract to FPO-1 was Earl and Wright Consulting Engineers, who provided the Design Quality Assurance (DQA) for the project.

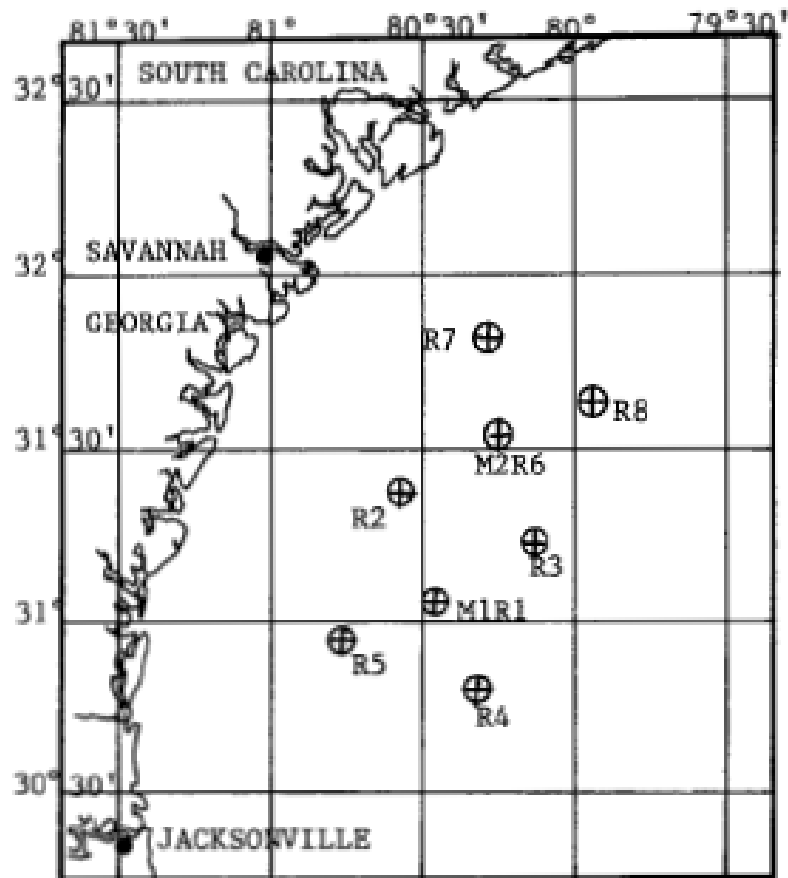
The unmanned towers were to be located approximately 80 miles south of Charleston, South Carolina, and about 60 miles east of northern Georgia as shown in the map below. There are two master stations with collocated remotes and six remote stations. One of the remote structures supports microwave relay equipment in addition to the TIS remote electronics (Relay/Remote). The master structures support two parabolic antennas, a water/weathertight enclosed area for the electronics, approximately 24,000 pounds of batteries and associated equipment, a stand-alone hybrid solar and wind power system, stand-by diesel generator set with fuel storage and a heliport. The Relay/Remote structure supports two parabolic antennas, batteries, generator and heliport. The Remotes support two parabolic antennas, photovoltaic panels, batteries and a heliport. The final design was completed in August 1985 and the configuration of the towers is shown below. Each of the eight ocean structures consists of a tubular steel space frame template, a superstructure, and piling. The aggregate length of the piling exceeds 6,000 feet. The total steel tonnage for all eight platforms is approximately 7,000 tons.

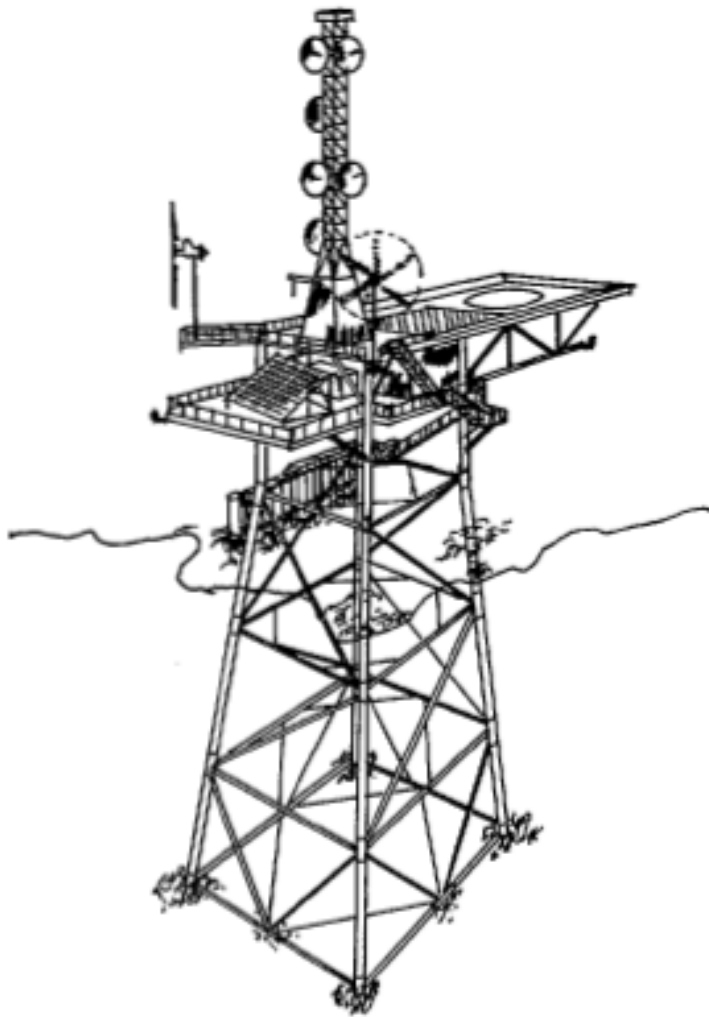
The project schedule required all eight structures be installed in the summer months of 1986. To accomplish this schedule, FPO-1 pre-qualified the potential construction contractors to ensure each bidder had adequate resources to complete the project. The Invitation for Bids was issued to the pre-qualified contractors in September 1985. In January, 1986 FPO-1 awarded a contract to McDermott Marine Construction to fabricate and install the platforms. The construction contract was administered by FPO-1 through a Resident Officer-In-Charge of Construction (ROICC) assisted by FPO-1 engineers and contracted engineering services.

McDermott fabricated the structures in Texas and barged them to the construction sites. The ROICC office was initially located at the fabrication site and then moved to the construction platform. Once onsite, the jackets were placed in position, piles driven through the legs and welded to them. Then the superstructures were placed on the jacket and welded. Finally, the antennas and other equipment was installed. The project was completed on schedule in September 1986 and the facilities turned over for installation of the TACTS subsystems.

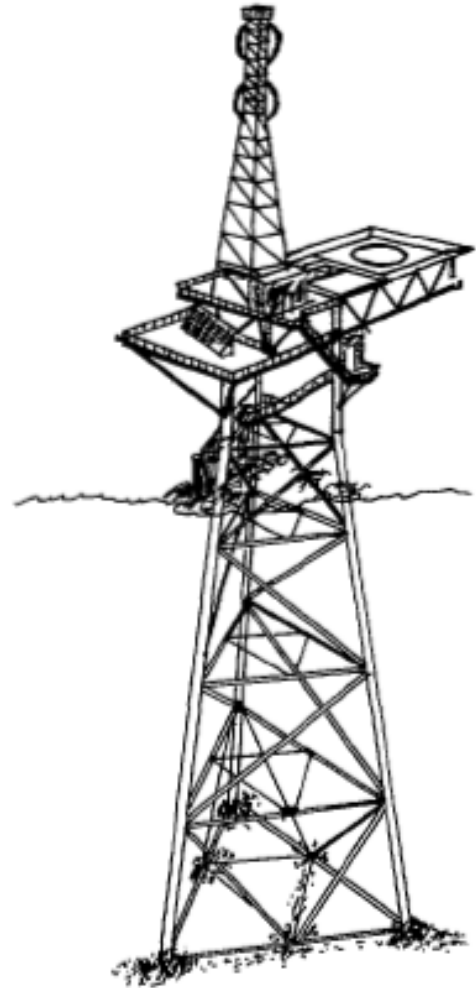
Project Report Link:

Charleston Tactical Aircrew Combat Training System Offshore (Paper presented at Oceans 86 Conference)





Master Platform Configuration



Remote Platform Configuration