



PHOENIX DESIGN USED FOR USS MONITOR TURRET RECOVERY

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Washington, DC -- Phoenix International, Inc. (Phoenix), working under its ongoing Diving Services contract with the Navy's Supervisor of Salvage and Diving (SUPSALV), designed the capture device used on 5 August to recover USS MONITOR's rotating gun turret. Phoenix engineers, reacting to compressed schedule requirements, developed the turret recovery concept, and transitioned it through design and fabrication to deployment within a three month period.



The design addressed numerous engineering challenges including accommodating the turret's shape (9 ft. high, 21.5 ft. diameter) and 143-ton weight, the need to preserve the artifacts and human remains expected to be within it, the possibility that the two 8-ton each Dahlgren guns may shift during the recovery procedure, and diver safety issues. The latter were of paramount importance as Navy divers were tasked with operating the capture device to secure it to the turret, and rigging the system for lift to the sea surface.

The Phoenix recovery concept consisted of two mateable underwater structures. The first incorporated 8 hydraulically operated, stiff legged hooks that pivot on a wagon-wheel style frame. This primary unit, called the spider, was lowered over the turret. By individually manipulating each of the moveable legs, divers hooked the spider to the lower periphery of the turret, and locked it in place. This assembly was then lifted and placed on the second element of the recovery device, a support platform designed to minimize stress on the turret roof and prevent the loss of artifacts. Proper alignment of the spider and platform was achieved using two large guide pins located on the support platform. Diver operated turnbuckles securely locked the spider to the support platform allowing the entire assembly to be lifted to the surface as a single unit.

The spider was designed and all rigging sized to support the entire expected load with only four of the eight legs. Where possible, the rigging used synthetic slings to facilitate installation by the Navy divers. Kidder, Inc. of Morgan City, LA fabricated the recovery system, and Versabar, Inc. of Belle Chase, LA provided the spreader frame and hook slings. Manson Gulf LLC of Houma, LA provided its 300 ft. long derrick barge, DB WOTAN and 500-ton lift crane. Coordination among Phoenix, Manson, and Versabar resulted in a safe, workable rigging design that met all operational requirements.

Phoenix provides high quality manned and unmanned marine services to an international customer base from its facilities in Landover, MD and Morgan City, LA. Phoenix is the SUPSALV prime contractor responsible for providing the Navy with worldwide diving and diving related services in support of underwater ship repair and salvage activities.

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