



PEO-M Undersea Test Shape Assessment Event Assessment Criteria

Purpose

SOFWERX, in collaboration with USSOCOM Program Executive Office-Maritime-Undersea (PEO-M-U), will host an Assessment Event (AE) to design and manufacture one (1) test shape and cradle to JEB Little Creek, VA.

Background/Synopsis

USSOCOM desires a durable, representative maritime test shape and supporting deck cradle to enable controlled handling, transport, lifting, launch/recovery, and submergence activities from vessels and barges. The capability is intended to address the need for a test article that can safely operate in a harsh marine environment while maintaining defined weight, buoyancy, stability, handling, and interface characteristics.

The solution will be used to support at-sea and pier-side testing involving vessel or barge deck stowage, lifting operations, seawater submergence, towing, and stabilization. The test shape and cradle must be engineered for repeatable use, compatibility with Government-provided drawings and rigging equipment, and verification through Government-reviewed design and test activities. Detailed performance, dimensional, interface, material, and test requirements are provided in the Assessment Criteria.

Objective

USSOCOM seeks an industry partner to design, manufacture, test, and deliver one marine-capable test shape and associated deck cradle to JEB Little Creek, Virginia. The desired solution should focus on a robust cylindrical test article with controlled buoyancy and stability characteristics, safe vessel/barge handling and securement features, compatibility with Government-furnished interfaces, and a cradle that supports deck transport and lifting operations.

Minimum Capabilities/Characteristics

The vendor shall design and manufacture one (1) test shape to be lifted to/from vessels and barges and submerged in seawater. The test shape must possess the following minimum capabilities/characteristics:

1. Durable construction capable of withstanding a harsh marine environment to include submergence in seawater.
2. The test shape shall have a dry weight of 67,000lbs -0%; +5%
3. The test shape shall have a net positive buoyancy of 1000lbs (+5%, -5%) prior to any floodable voids filling with water.
4. The test shape shall have negative 1000lbs of buoyancy within 60 seconds of contact with the water. The test shape may have flood grates/baffles/vents to allow for a transition. For example, when the shape is fully submerged and connected to the lifting appliance, a load cell on the lifting appliance would register 1000lbs.
5. The test shape internal voids shall be watertight to maintain buoyancy if applicable. Use of permanent ballast (foam/concrete) may be used to achieve characteristics above. Design must be acceptable for a maximum water column depth of 20'.
6. The test shape shall have an overall cylindrical shape with outer dimensions of Length: 39'1" x Diameter: 8'
7. The silhouette when viewed from the front shall be cylindrical.





8. The silhouette when viewed from the side will have a blunt rounded nose and a more tapered tail with no sharp edges or corners.
9. The vendor shall manufacture a cradle for the shape to rest in while on deck. Cradle shall be able to be secured to the deck of a ship or barge.
10. The cradle must distribute the weight of the shape not to exceed 1200lbs per square foot. Cradle must have lifting points in order to lift the shape and cradle together as one lift in a static environment
11. The cradle shall have tie down d-rings or padeyes with sufficient strength to secure the shape to the deck of a vessel in up to Sea State 8 with slings or straps. Vendor must provide method of securing shape to cradle in same conditions. Vendor shall provide slings or straps.
12. The test shape shall have (2) topside lifting lugs, 194.88 inches apart on the shape's centerline with the center of the forward lug 9' from the nose of the shape. The plane of the topside lifting lugs shall be oriented longitudinally. Government shall provide drawings for lifting lugs. Lifting lugs shall be rated consistent with design provided by government. Lifting lugs shall be weight tested to a minimum of 200% of their rated load.
13. Center of gravity shall be located approximately 15'10" from the nose of the shape and 4'5" above the keel, with the center of buoyancy directly above, ideally to maintain 0 degrees of list/trim once in the water. The shape shall be engineered to utilize Government provided rigging equipment while maintaining a zero degree angle upon water entry and exit. Rigging arrangement shall be provided by the government.
14. The test shape shall be primed and painted (inside and outside) with matte black heavy duty marine grade coatings designed to be submerged in seawater and stored outdoors in a marine environment. Any inaccessible areas shall be sealed to prevent contact with seawater. Paint spec shall be MIL-DTL-2441 Type IV 150, 151, 152. An access hatch may be provided to the internal free flood voids to allow for personnel to enter and provide material preservation, if applicable.
15. Shape shall be fitted with four (4) D-ring attachment points in order to attach steadying lines. D-rings shall be placed on port and starboard sides, 4'6" above the keel, 4'9", 13'0", 18'7", and 26'10" from the nose of the shape. D-ring attachment points shall have a capacity of 5000lbs. D-ring drawings shall be provided by the government.
16. D-ring attachments shall be pull tested to 200% of capacity.
17. Shape shall be fitted with a towing padeye centered on the top side of the shape, 2'8" from the nose of the shape. Towing padeye shall have a capacity of 5000lbs. Towing padeye shall be able to accommodate a 5/8" Crosby Safety Shackle.
18. Towing padeye shall be pull tested to 200% of capacity.
19. Port and starboard sides of the shape shall have removable forward steering planes 7' from the nose and 3' above the keel. Steering plane drawings shall be provided by the government.
20. Vendor shall fabricate a tail structure that matches the government drawings provided.
21. Vendor shall provide a preliminary design review (PDR) within 45 days of award. Upon approval by the government, vendor shall provide a critical design review (CDR) within 30 days.
22. Vendor shall provide a test plan that accounts for all criteria listed above. Test plan shall be reviewed and approved by the government prior to execution.

