



DCS Multi-terrain Maintenance Trolley AE Assessment Criteria

PEO-Maritime Undersea will assess design concepts provided in the White Papers based on the following requirements:

- 1 The Dry Combat Submersible (DCS) Multi-terrain Maintenance Trolley, will be able to act as a support or maintenance cradle in all modes. This includes access to all Glass-Reinforced Plastic (GRP) panels, hatches, covers and hull mounted equipment. The vendor shall use the accessibility provided by the Original Equipment Manufacturer (OEM) shop trolley as a guide to minimum accessibility.
- 2 The DCS Multi-terrain Maintenance Trolley must have stow-a-away steps to gain access to all areas of the DCS requiring access (e.g. into lower Lock-In, Lock-Out (LIO), jacking handles etc.). Ladders, steps or rungs will be provided to access all maintenance areas, topside and hatches.
- 3 The DCS Multi-terrain Maintenance Trolley will facilitate human access to the four (4) locations of the DCS Lithium Fault Tolerant (LiFT) battery areas. This access will allow a human to be able to physically reach the LiFT Battery pods and remove GRP panels and battery assemblies.
- 4 Additional access will be required through the DCS Multi-terrain Maintenance Trolley covering for defined maintenance, support and inspections.
- 5 The DCS Multi-terrain Maintenance Trolley must allow access for human ingress/egress to the Command Hatch and upper LIO. This may be accomplished through panels on the Multi-terrain Maintenance Trolley.
- 6 The DCS Multi-terrain Maintenance Trolley arms shall be able to be manipulated to remove GRP while supporting the weight of the vehicle while stationary.
- 7 The DCS Multi-terrain Maintenance Trolley must meet current DCS weight requirements and have enough reserve capacity to include an additional 10K lbs of growth margin.
- 8 Vendor shall procure and deliver Preventative Maintenance Cards, Operating Manual, drawings, and 3D model.
- 9 Drawings will list all parts associated with building the trolley to include, but not limited to soft goods, lubricants, torque values for fasteners.
- 10 Drawings to be delivered shall be Level III to include all sub drawings.
- 11 The DCS Multi-terrain Maintenance Trolley internal space, while the DCS is inside will have the temperature maintained to +80 and -50 degrees F. (This requirement still to be verified by offeror).
- 12 Securing mechanisms shall be fully integrated and hand operated.





13 No special tools shall be required to load, transport, unload or operate the Multi-terrain Maintenance Trolley.

14 The DCS Multi-terrain Maintenance Trolley must not exceed a maximum time limit of 1 hour to load or offload DCS to or from the Multi-terrain Maintenance Trolley.

15 The DCS Multi-terrain Maintenance Trolley must have the ability to load the submersible to and from the Multi-terrain Maintenance Trolley using common equipment that is available at the commercial and military locations (e.g. crane).

16 The DCS Multi-terrain Maintenance Trolley must not exceed a maximum time limit of 2 hours to load or offload from any of the defined conveyances (air, land, or sea).

17 The DCS Multi-terrain Maintenance Trolley must use materials and processes to operate for the intended seawater maritime environment.

18 The DCS Multi-terrain Maintenance Trolley shall be designed to operate for 20 years with minimal maintenance. A maintenance and support plan will be provided for approval by the Government.

19 Maintenance of the DCS Multi-terrain Maintenance Trolley must be in accordance with standard practices. It is expected that preventive and corrective maintenance will be accomplished by a Logistics Support Unit (LOGSU) or ship's force. Multi-terrain Maintenance Trolley will be delivered with a life-cycle sustainment plan that considers maintenance, spares, support equipment, qualification / training requirements.

20 The DCS Multi-terrain Maintenance Trolley must not have a single point failure of the drive or tire system that degrades performance.

21 The DCS Multi-terrain Maintenance Trolley design must support covering the DCS such that it cannot be visually detected/classified while in transit, or in standby on the Multi-terrain Maintenance Trolley. This provision will both protect the DCS from environmental or other hazards and mask the DCS shape and presence/absence.

22 The DCS Multi-terrain Maintenance Trolley must have the ability to stow lifting equipment to support loading and offloading from the Multi-terrain Maintenance Trolley and water ingress and egress must be provided and attached/stored on board the Multi-terrain Maintenance Trolley. The objective requirement is that all support equipment required to load or unload the DCS from the Multi-terrain Maintenance Trolley and place/remove the DCS on cradles or to water are transported with the DCS in the Multi-terrain Maintenance Trolley. As an objective, the Multi-terrain Maintenance Trolley shall provide the capability to perform water launch from a suitable boat ramp to be determined by the contractor.

23 All additional support equipment will be carried in a separate container(s) that are not a part of this requirement set.

24 If additional support equipment is required for transport (pads, ramps, tie downs, etc.), this gear must be attached/stored on board the Multi-terrain Maintenance Trolley.



- 25 The DCS Multi-terrain Maintenance Trolley must have the ability to retain/capture fluids that may leak (oil, sea water, etc.).
- 26 The DCS Multi-terrain Maintenance Trolley must be transportable by C-5 and C-17 aircraft. As an option the design should accommodate transportation on the aircraft with its mobility source (mule, truck or self-propelled. Must have the capability to be Air Transport Test Loading Activity (ATTLA) certified for transport, including all support equipment without DCS aboard.
- 27 The DCS Multi-terrain Maintenance Trolley must be able to load and unload from aircraft using common equipment that is routinely available at commercial and military airports. As an option, the Multi-terrain Maintenance Trolley shall be self-propelled.
- 28 The DCS Multi-terrain Maintenance Trolley must be able to be picked up with a single hook crane.
- 29 The DCS Multi-terrain Maintenance Trolley must be able to support side loading 3x the vehicle weight.
- 30 If self-propelled using internal combustion engine, must use diesel fuel and be able to accept offroad diesel, also must be acceptable to drive indoors. Contractor may propose alternate methods (e.g. electrical).
- 31 The DCS Multi-terrain Maintenance Trolley must be able to steer conventionally with a turn radius of 2x the length of the trolley, crab steer and circle steer with a turn radius of 1.5x the length of the trolley. As an objective the Multi-terrain Maintenance Trolley will be able to do an on-the-spot 360-degree turn.
- 32 The DCS Multi-terrain Maintenance Trolley must be able to automatically level itself to within 5 deg over uneven terrain. It is desired that the trolley shall have the ability to cant for and aft and port and starboard up to 10 deg.
- 33 The DCS Multi-terrain Maintenance Trolley must allow transport of the DCS in its operational configuration (batteries, gasses in flasks, coolant (NOTE: Assumes DCS removable bow planes ECP has been installed).
- 34 The DCS Multi-terrain Maintenance Trolley must have the ability to monitor critical DCS systems while loaded on the Multi-terrain Maintenance Trolley (current planning requires that Multi-terrain Maintenance Trolley internal space temperature and LiFT battery pods require monitoring).
- 35 The DCS Multi-terrain Maintenance Trolley shall be able to maintain a transportation speed of at least 2.5 mph for 2 miles (single direction) when loaded with DCS with a continuous 5% grade.
- 36 The DCS Multi-terrain Maintenance Trolley shall be able to operate for at least 5 hours of continuous operation without refueling or replenishment.



- 37 The DCS Multi-terrain Maintenance Trolley shall be able to complete at least 4 sorties consisting of a single direction path of 2 miles and return to point of origin without replenishment.
- 38 The DCS Multi-terrain Maintenance Trolley must have the ability to roll over rugged terrain 3" or less without the tires getting locked/stopped by debris/rocks. It is desired that the Multi-terrain Maintenance Trolley shall be able to negotiate a 6" obstacle.
- 39 The DCS Multi-terrain Maintenance Trolley must meet Department of Transportation (DOT) requirements for turning radius, height, weight distribution, width, etc.
- 40 The DCS Multi-terrain Maintenance Trolley must be able to transport without a wide load permit.
- 42 The DCS Multi-terrain Maintenance Trolley must have all around drive lights with blackout switch.
- 43 The DCS Multi-terrain Maintenance Trolley must support transit without the DCS aboard on current and proposed Ships of Opportunity (SOO).





For Reference the Government provides the following Attachments.

1 - DCS1-GA-00-01 V1-0 [DCS1 General Arrangement-Sheet 1-External]

2 - DCS Cradle Drawing

