



## **Safety Event/Near Miss Report**

**Date of Event:** April 30, 2015

**Vessel or Facility:** Cyclops 1

**Location:** Everett Marina

**Individuals Witnessing/Involved:** C1\_0009 Crew (sub and surface support) + [REDACTED] and [REDACTED]

**Description of Issue/Problem:** After the loading of the submersible, while still at the dock, the sub pilot [REDACTED] was unable to physical move the starboard hatch latch mechanism to its most fully engaged position. It was able to be moved externally, but may not have been able to be released from inside the sub without damaging the actuation lever. Rush engaged the latch as much as possible from the inside, then attempted to force open the hatch. Being unable to open the hatch with one latch engaged and then with the second latch normally seated, he was confident that there was no chance for the hatch to leak or unseat. However, the external personnel could see that the starboard latch was just barely engaged and some members were vocally concerned about the anomaly. The Mission Director decided that this was a pilot decision and decided to push ahead without 100% consensus in the group as to the safety of the hatch. The subsequent dives were uneventful and upon a post dive debrief those initially concerned were satisfied with the hatch operation. As a group it was further decided that marina dives could proceed and the hatch was forced closed by the outside crew so it was in its farthest travel point.

A brief description of the hatch and hatch function follows:

Cyclops 1 has two lever activated hatch mechanisms. Either one can hold the hatch closed and, in fact, a small downward force (less than 10lbs) on the hatch will close it sufficiently without latches. Once the dome is underwater the hatch, and its low pressure seal, are essentially irrelevant as hydrostatic pressure causes the hatch to fully lock/seat in position. The purpose of one or both hatch lock mechanisms is to keep the hatch down for the first 0-12 inches of the dive and ensure that during surface tow operations no water can leak into the cabin.

**Analysis of issue:** Per the post dive discussions and after a review of the relevant facts it was agreed that, from a purely functional standpoint, the hatch engagement was not a safety of dive issue. However, procedurally there was a failure to obtain team consensus of

this fact before dive operations commenced. In fact, there was vocal and clear opposition to dive operations which was overruled. The fact that the pilot was the CEO and that there were a number of VIP guests on board clearly contributed to a “get it done” mentality that was not consistent with a safety culture that must rely on consensus to ensure no activities are pursued that are potentially unsafe. The pilot/CEO was aware of shore concern (although not its intensity) and should have overruled himself and the Mission Director to halt the mission and obtain a full safety consensus. In no event should any safety concern be ignored. Procedurally it is the Mission Director’s role to be certain that not only are the various systems safe, but almost equally importantly, that all members agree that they are safe.

**Remedy(ies):** The following procedural changes are hereby recommended:

- 1) Confirm at the start of each mission that anytime anyone involved with a dive expresses a safety concern, all operations shall stop (except where in doing so might cause greater safety risks). Thereafter the person(s) shall be heard in full, the problem addressed and, unless the solution and/or discussion is sufficient to allay the individual(s) safety concern, the mission will be terminated or postponed until all concerns are addressed/investigated/resolved.
- 2) The Mission Director shall add to the mission checklist a roll call of every member to confirm they are comfortable moving ahead. This shall formally occur after the dive briefing. After the roll all members will be reminded that at any time they have a change of mind and have a safety concern they can and should force a halt of operations by informing the Mission Director that they have a safety concern. Operations will halt until all concerns are resolved.
- 3) Anytime senior management (members senior to the Mission Director) are involved in a dive a new risk factor with a 20 point weighing shall be added to the risk assessment matrix.
- 4) Anytime a VIP (shareholder, major customer, celebrity, etc.) is on board a 10 point weighing shall be added to the risk assessment matrix.

**Commented [NBM1]:** Should request termination of operations from Mission Director because of a safety concern.

Recommendations to be implemented immediately.

Remedies confirmed completed by: \_\_\_\_\_ Date: \_\_\_\_\_