Bureau of Safety and Environmental Enforcement

SAFETY ALERT

Safety Alert No. 499

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Umbilical Termination Failure Leads to Dropped Remotely Operated Vehicle (ROV)

Figure 1: ROV Dropping into Water Due to Umbilical Failure During Recovery.

Incident Overview: An incident occurred at a Gulf of America facility involving a remotely operated vehicle (ROV) that resulted in the ROV dropping into the water and descending to the seafloor (Figure 1). The ROV operator had completed an inspection dive of the drilling riser and Blow Out Preventor (BOP) and was in the process of recovering the unit from the water.

After the ROV was nested in the Launch and Recovery System (LARS) cursor, the unit cleared the surface and traveled the vessel cursor rails up to the cursor transition point. At the transition point, the operator stopped hauling in the umbilical winch and cursor assist tuggers to switch the umbilical winch to low-tension mode.

As the ROV reached the cursor rail transition point, the umbilical parted, causing the ROV to drop to the seafloor. The ROV was subsequently located and recovered using its transponder. No damage to any seabed assets or harm to personnel occurred.

Cause: The incident was traced back to a flaw in the initial umbilical attachment. A resin was used to secure the umbilical to the ROV, but the resin case was faulty, and the armored strands were improperly centered and distributed during the attachment process (Figure 2). Despite passing a previous pull test, the defects led to the failure.

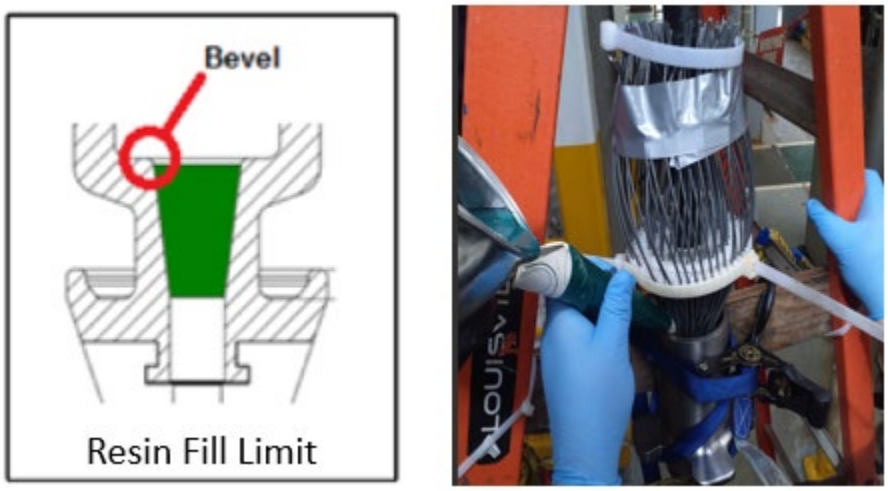
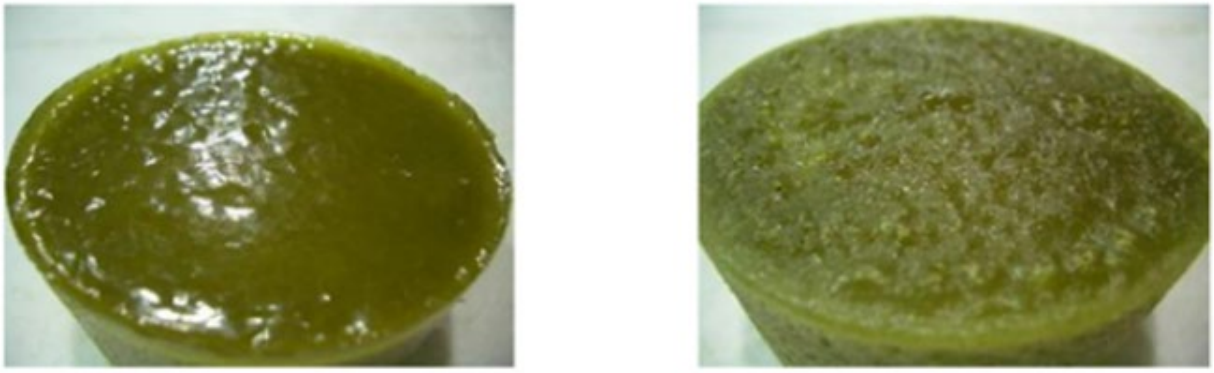


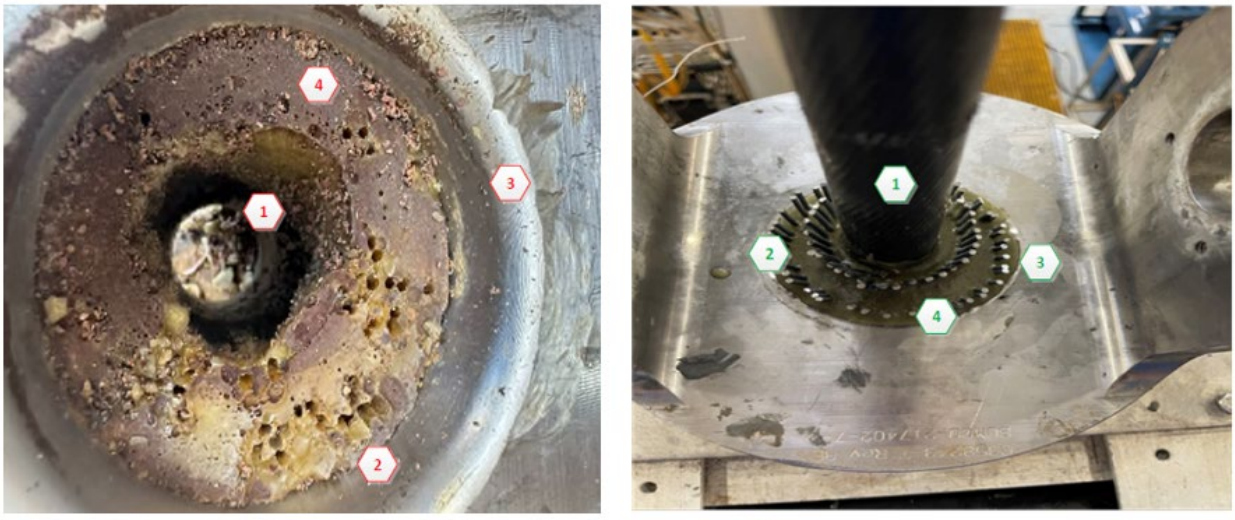
Figure 2: Inverted Resin Fill Cone and Armor Strands.



Good Cast, glossy, bubble-free surface

Bad Cast, contaminated, grainy surface with bubbles

Resin Cast Examples.



Actual Failed Termination of the ROV Umbilical and Example of Correct Strand Centering Distribution.

Therefore, BSEE recommends that operators and their contractors, where appropriate, do the following:

- Develop and implement an umbilical termination inspection procedure and training program to ensure proper inspection of resin condition and the assessment of armored strand separation. The program should also include training on re-termination of umbilicals.

- Incorporate umbilical inspections into pre-job checks and maintenance procedures to ensure the integrity of the connection is verified prior to use.

– BSEE –

A **Safety Alert** is a tool used by BSEE to inform the offshore oil and gas industry of the circumstances surrounding a potential safety issue. It also contains recommendations that could assist avoiding potential incidents on the Outer Continental Shelf.

Category: Dropped Object