



MARINE SAFETY ALERT

Inspections and Compliance Directorate

November 9, 2021
Washington, DC

Safety Alert 08-21

VERIFY PRODUCTS FROM SOUTHWEST WIRE ROPE COMPANY **Incorrect Terminations Can Lead to Catastrophic Failure**

This Safety Alert addresses the importance of verifying the condition, manufacturing, and physical specifications of wire rope that was purchased directly from Southwest Wire Rope (SWWR) or fabricated by SWWR and sold through other vendors.

An ongoing safety investigation following the catastrophic failure of a new wire rope provided by SWWR within a month of being newly installed has revealed several discrepancies in the company's product fabricating procedures and quality management processes (please see the enclosed Oxy Safety Alert 07-01-2021). The wire rope, which was the subject of the investigation, was found to not match the specifications on the purchase order and receipt provided to the client by SWWR. The subject wire rope was both constructed of the wrong components and with an improperly applied fitting than what the client actually ordered. Additionally, the Coast Guard observed discrepancies in the subject wire rope's improperly applied swaged fittings and the use of the incorrect size of swaged fittings, which resulted in unintentional damage to the wire rope and eventual catastrophic failure of the termination. The Coast Guard is currently unaware of how long this quality control measure has been an issue for the company and, for this reason, is issuing this safety alert.



Figure 1: Fitting has a uniform appearance

The Coast Guard **strongly recommends** that owners, manufacturers, operators, and service providers utilizing wire rope purchased from or fabricated by SWWR do the following:

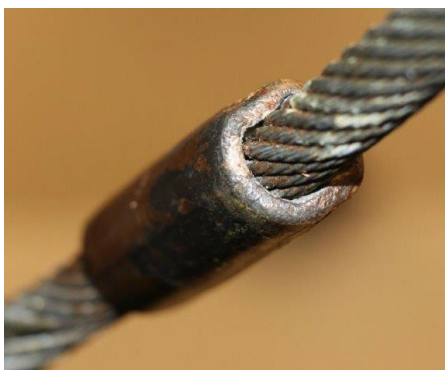


Figure 2: Completed fitting is not "round" nor within manufacturer specifications

- Verify the source and manufacturer of all wire rope, and if purchased or fabricated by SWWR, carefully observe the specifications of the rope to ensure it matches the product that was purchased (i.e., construction (number of wires per strand and number of strands) and wire rope lay);
- Visually examine wire rope terminations for abnormalities that may indicate improper installation (Figure 1 shows a crimp with a uniform appearance, while Figure 2 shows out-of-roundness and Figure 3 shows ridges created by over-crimping). These ridges or abnormalities **COULD** be indicative of over-crimping, but any abnormalities need to be verified based on the type of crimp

and manufacturing die used in the crimping process (i.e., some manufacturers' dies have chambers for excess material that is then removed and can leave lines that appear similar to ridges);

- Compare fitting dimensions against the manufacturer's specifications/tolerances for the completed fitting (i.e., does the length and diameter fall within fitting manufacturer specifications?);



Figure 3: Fitting is deformed with "ridges" of extra material present from over-crimping.

- Verify that the termination type does not reduce the safe working load of the wire rope below the minimum safety factor for the type of service; and

- If any abnormalities in the wire rope are detected, immediately remove the wire rope from service and make an appropriate replacement.

It should be noted that SWWR fabricated fittings are typically marked with gold paint, but paperwork related to SWWR products should also be verified.

If any person is unsure whether their wire rope may be affected or has ongoing concerns about wire rope purchased from Southwest Wire Rope, the Coast Guard recommends reaching out to the company directly, your nearest Coast Guard marine inspector, or the below Coast Guard National Centers of Expertise (NCOE):

- Outer Continental Shelf NCOE: Mr. Harley Bates at harley.d.bates@uscg.mil or Mr. Gene Sykes at edward.e.sykes@uscg.mil.
- Investigations NCOE: Mr. Willie Pittman at willie.e.pittman@uscg.mil.

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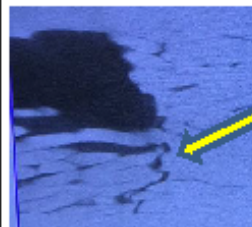
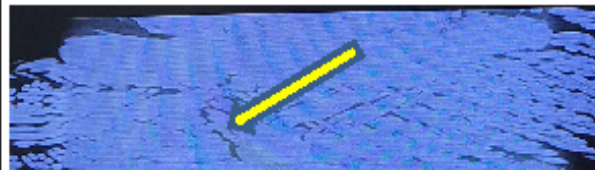
Incident Summary

On Jan 4, 2021, 3 offshore personnel were retrieving marine debris by using the Fast Rescue Craft (FRC). The task was completed and the FRC hoisted back up into position. After the 3 personnel exited the FRC, the wire rope assembly (wire rope, thimble, and crimp) broke, and the FRC fell 135 feet to the Gulf of Mexico.

No one was injured in the fall, but the FRC was damaged beyond repair.

Contributing Factor(s)

- Incorrect wire rope was used in the construction of the wire rope assembly loop
 - The wire rope ordered was 35x7 with a 12 mm diameter and 30,875 lbs breaking strength
 - The wire rope received was 19x7 with a 0.5 in (12.7 mm) diameter and 21,600 lbs breaking strength
 - Improper swaging procedure includes failures within a quality management system in which material are improperly selected and do not match the specifications of the original equipment manufacturer
 - The cable/wire rope diameter was sized at 0.5 in (12.7mm) and the crimp/swage was specified for a 12mm diameter Wire
- Wire rope supplier failed to conduct a positive verification to ensure the correct material was used to fabricate the assembly loop.
- The larger diameter wire rope contributed to an improper termination of the assembly and was damaged inside the crimp during the crimping process.



Lessons Learned

- The similarity in diameters between a 0.5 in cable (12.7mm) and a 12mm cable creates a possibility for confusion regarding use of the appropriate cable.
- Verify that the construction of the wire rope ordered is the same as the wire rope received before installation