

# Crane Wire Failure on Offshore Construction Vessel *Island Venture* and Subsequent Damage to Offshore Supply Vessel *C-Enforcer*

On April 3, 2025, about 2145 local time, the offshore construction vessel *Island Venture*'s crane was being used to lift a wire reel from the back deck of the offshore supply vessel *C-Enforcer* in Bayou Lafourche, Port Fourchon, Louisiana, when the crane's hoisting wire parted, causing the reel to drop onto the *C-Enforcer*'s main deck (see figure 1 and figure 2).<sup>1</sup> There were no injuries, and no pollution was reported. Damage to the *C-Enforcer* and *Island Venture* was estimated to be \$3.8 million.



**Figure 1.** Left to right: The offshore construction vessel *Island Venture* and offshore supply vessel *C-Enforcer* underway at unknown dates. (Sources: marinetraffic.com, The Sailor and Peter Dieter Jansen)

<sup>1</sup> (a) In this report, all times are central daylight time, and all miles are nautical miles (1.15 statute miles). (b) Visit [ntsb.gov](https://www.ntsb.gov) to find additional information in the [public docket](#) for this NTSB investigation (case no. DCA25FM030).

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### Casualty Summary

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<b>NTSB casualty category</b>	Ship/Equipment/Cargo Damage
<b>Location</b>	Bayou Lafourche, Port Fourchon, Louisiana 29°6.80' N, 090°12.40' W
<b>Date</b>	April 3, 2025
<b>Time</b>	2145 central daylight time (coordinated universal time -5 hrs)
<b>Persons on board</b>	6 ( <i>C-Enforcer</i> ), 21 ( <i>Island Venture</i> )
<b>Injuries</b>	0
<b>Property damage</b>	\$3.8 million est; \$766,000 ( <i>C-Enforcer</i> ), \$3 million ( <i>Island Venture</i> )
<b>Environmental damage</b>	None
<b>Weather</b>	Visibility 10 mi, winds southeast 11 kts, gusts 19 kts, air temperature 77°F, morning twilight 0555, sunrise 0647
<b>Waterway information</b>	Channel; width 600 ft, depth 25 ft

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**Figure 2.** Area where the *C-Enforcer* and *Island Venture* casualty occurred, as indicated by a circled X. (Background source: Google Maps)

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# 1 Factual Information

## 1.1 Background Information

The 240-foot-long, US-flagged offshore supply vessel *C-Enforcer* was constructed of steel and built in 1999 by LaShip LLC in Houma, Louisiana. The 524-foot-long, Vanuatu-flagged offshore construction vessel *Island Venture* was constructed of steel and built in 2017 by Ulstein Verft AS in Ulsteinvik, Norway. Both vessels were operated by Galliano Marine Service LLC and owned by affiliates of the Edison Chouest Offshore family of companies.

The *Island Venture* was equipped with a subsea crane positioned on the starboard side, aft. The subsea crane was a knuckle-boom-style crane, with the hoisting winch located below deck, and the crane was specifically designed for load-handling toward the seabed, underwater installations, or other fixed targets. As built, the crane's safe working load (SWL) was 400 metric tons (MT); on the day of the casualty, it was rated for 320 MT (see section 1.3.2).<sup>2</sup>

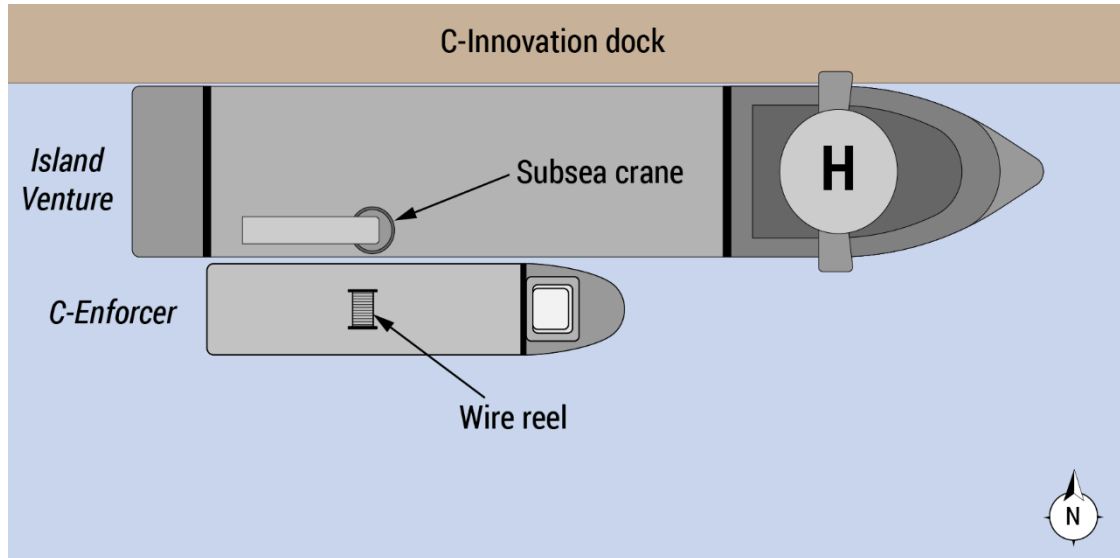
## 1.2 Event Sequence

On the morning of April 3, 2025, the *C-Enforcer* was docked at E Slip at the Fourchon Heavy Lift yard in Port Fourchon, Louisiana, with a crew of six aboard. While the vessel was docked, shoreside personnel loaded a 338-MT wire reel via a shoreside crane onto the main deck of the *C-Enforcer*. The wire reel was comprised of spooled wire 5 inches (128 millimeters) in nominal diameter and 13,451 feet (4,100 meters) in length. It was intended as a replacement hoisting wire rope for the *Island Venture*'s subsea crane. Due to draft restrictions, the *Island Venture* could not fit at E Slip and was instead moored at the C-Innovation dock, about 0.5 miles from E Slip, with a crew of 21 aboard. The *C-Enforcer* would be used to transport the loaded wire reel to the *Island Venture* for replacement.

At 1200, the *C-Enforcer* departed E Slip and transited to the C-Innovation dock, where the *Island Venture* was moored. The *C-Enforcer* was positioned alongside the *Island Venture*'s starboard side so that the wire reel could be offloaded by the *Island Venture*'s subsea crane later that evening (see figure 3).

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<sup>2</sup> A crane's safe working load is the load that a complete crane assembly is approved to lift on its cargo hook.

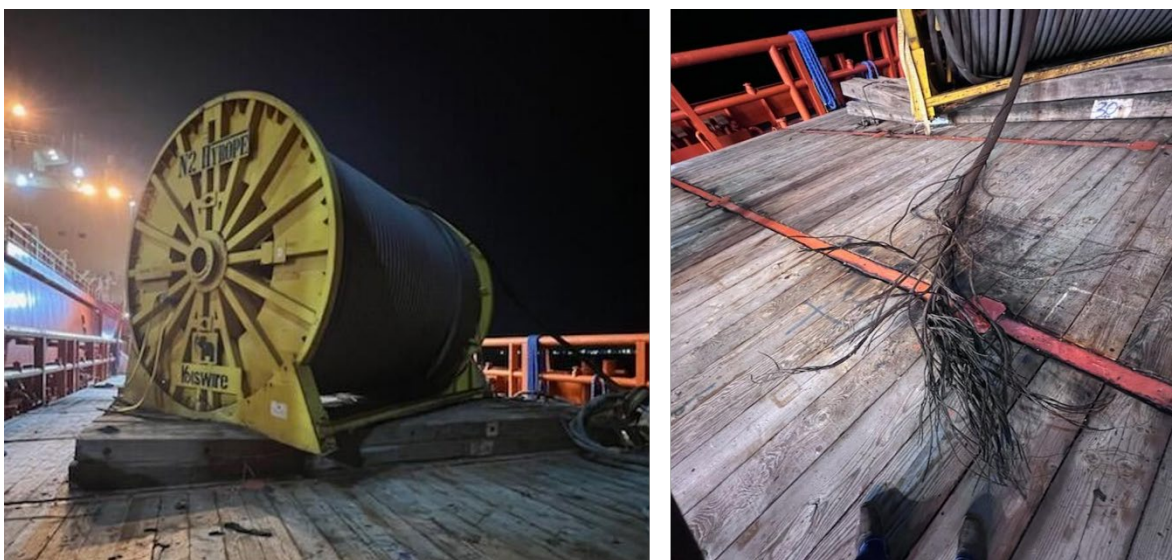


**Figure 3.** Overhead view showing positions of *Island Venture* and *C-Enforcer* at the time of the casualty. (Scale approximate.)

That afternoon, a lift team that included two riggers and a crane operator from the *Island Venture* completed a lifting and hoisting plan according to the operating company's safety management system. This involved completing a pre-job checklist, which included a risk assessment and job assignments; holding a meeting for the lift team to discuss the plan; and completing a pre-use checklist for the crane, which included a visual inspection of the crane's machinery and components. No abnormalities were noted.

At 2000, the two riggers boarded the *C-Enforcer* to rig the wire reel for the lift and to communicate with the crane operator, who was located in the crane's operating cab on *Island Venture*, as the lift was executed. About 2100, the crane operator on the *Island Venture* proceeded with lifting the wire reel off the main deck of *C-Enforcer*. The crane operator first completed a safety check, using the crane to raise the wire reel a few feet, then lowering the wire reel back onto the deck (the crane operator had to activate the override function to complete the lift; see section 1.3.2). Once the crane operator had confirmation from the riggers that everything looked good, they proceeded with the lift. The crane operator and one rigger stated that, as the lift began, the wire reel was free of obstruction, and the reel was rising smoothly.

After about 15 minutes, the crane operator stopped the lift to allow the ballast system aboard the *Island Venture* to even the trim.<sup>3</sup> After about 5 minutes, once he had ensured the load was straight (vertical), the crane operator proceeded with lifting the wire reel. When the reel was 5-10 feet above the deck, the main hoisting wire parted about 70 feet from the base of the crane block socket, causing the wire reel to fall onto the main deck of *C-Enforcer* (see figure 4).



**Figure 4.** Fallen wire reel on *C-Enforcer*'s main deck (left) and parted hoisting wire rope (right). (Source: US Coast Guard)

After the wire parted, its recoil damaged a hydraulic line on the upper crane pedestal on the *Island Venture*. Sensing the drop in hydraulic pressure, the crane's safety system stopped hydraulic fluid flow. The rigging crew on the *C-Enforcer* and the crane operator on *Island Venture* were uninjured.

The following day, the casualty was reported to the US Coast Guard. The *C-Enforcer* transited back to the Fourchon Heavy Lift yard with the wire reel aboard; the reel was offloaded using a shoreside crane.

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<sup>3</sup> *Ballast* is material, usually seawater, taken aboard a ship when it is lightly loaded or empty in order to increase draft and improve maneuverability. The *Island Venture* had a trim/heel ballasting system that could shift ballast to reduce heeling and even the vessel's trim.

## 1.3 Additional Information

### 1.3.1 Damage

At the request of Edison Chouest Offshore, on April 4, a damage surveyor boarded the *C-Enforcer* to assess the damage to the vessel. The surveyor's preliminary report noted damage to the main deck plating, deck boards, upper framing of engine room (beneath the main deck), various upper engine room piping, and the upper portion of a liquid mud tank (see figure 5).



**Figure 5.** Damage to *C-Enforcer* main deck (top) and framing of upper engine room and liquid mud tank (below).

After the casualty, Coast Guard and National Transportation Safety Board investigators visually examined the parted hoisting wire and the remaining wire on board *Island Venture* (see figure 6). The hoisting wire showed internal and external oxidation (rust). The outside diameter of the wire had minimum and intermittent aged lubrication grease coverage throughout the length.



**Figure 6.** Parted hoisting wire that fell with wire reel onto deck of *C-Enforcer*.

## 1.3.2 Crane Use, Testing, and Maintenance

### 1.3.2.1 Crane Use

The *Island Venture*'s crane had been installed on the vessel in 2017 and was used primarily for subsea work. At the time of the casualty, the crane's hoisting wire was 10 years old and had been in service for 8 years. The crane operator stated that when the crane was used for subsea work, the wire could be submerged to depths ranging from 1,800 meters (5,905 feet) and up to 2200 meters (7,217 feet) and stay submerged for up to 24 hours as part of operations. According to the operating company, between April 2023 and the time of the casualty, the hoisting wire was used for subsea operations (submerged) 66 times. The crane operator stated that the last time the crane was used for subsea work was about a month and a half before the casualty.

### 1.3.2.2 Testing and Maintenance

As built, the crane's SWL was 400 MT. The crane had an override function, which, if activated, would allow the operator to exceed the SWL by 10% (up to 440 MT). The crane was proof-load-tested for class at 10% in excess of the SWL—using

the override function—every 5 years as part of the crane retesting survey and visually inspected during annual surveys.

When the crane’s hoisting wire rope was originally installed, it had a minimum breaking force (strength or load) of 13,300 kilo-newtons (1,356 MT). Every 5 years, as part of the operating company’s wire rope maintenance procedures and classification requirements, a sample of the hoisting wire rope was removed and shipped to a third-party testing facility for a “break test.” The hoisting wire rope underwent a break test in July 2024, about 9 months before the casualty. This was the second break test since the installation of the wire in 2017. During the break test, the wire rope sample broke at 9,850 kilo-newtons (1,004 MT).

The operating company’s subsea main crane wire maintenance procedures stated, “If the break test results are below the minimum breaking force, vessel shall either replace the subsea main crane wire or reduce the subsea main crane’s SWL to maintain a minimum safety factor of 3.1 to 1.”<sup>4</sup> Following the results of the break test, the vessel operator worked with the crane manufacturer to reprogram the crane, reducing its SWL from 400 MT to 320 MT. With the crane reprogrammed, the crane’s override function, if activated, would allow the operator to exceed the 320 MT SWL by 10%, up to 352 MT. The operating company planned to replace the wire in April 2025; the heaviest planned lift between the crane’s derating and the scheduled replacement was 72 MT.

The vessel’s preventative maintenance schedule included daily and weekly visual inspections of the crane, as well as monthly lubrication intervals for the crane, during which the crew. According to the user manual for the crane—

During service the rope may be sprayed with a light oil to maintain the rope in good condition, but having been operating subsea it is considered almost impossible to remove all the salt water from the rope during operation. If the winch is going to be idle for an extended period, the extra effort of washing [rinsing] the rope with fresh water during retrieval and then coating with a thin oil to penetrate the rope and displace moisture may be worth considering.

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<sup>4</sup> For a crane, *safety factor* (or *factor of safety*) is the ratio between the minimum breaking load and the SWL. It provides the engineering buffer that accounts for wear, fatigue, shock loading, and environmental stress, which can all reduce the effective strength of a crane component. The *Island Venture* was classed by the American Bureau of Shipping, which required a minimum safety factor of 3.0.

Maintenance records showed that the crew performed all required maintenance in accordance with the preventative maintenance schedule. Additionally, according to the crane operator, the crew typically completed a freshwater rinse of the crane's hoisting wire whenever they retrieved the wire from the ocean. (The wire was last retrieved about a month and a half before the casualty.)

The crew could only lubricate (grease) the entire length of the hoisting wire rope using high-pressure lubrication. During the high-pressure lubrication process, a mechanical device injected grease into the wire as it passed through the device. The process took about 6 hours and required the vessel to be offshore with adequate depth to pay out the wire. The manufacturer recommended the use of high-pressure lubrication on the hoisting wire rope every other year. The crew had last completed high-pressure lubrication in April 2023.

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## 2 Analysis

While the offshore construction vessel *Island Venture*'s subsea crane was being used to lift a wire reel from the offshore supply vessel *C-Enforcer* and load it onto the *Island Venture*, the hoisting wire parted, causing the wire reel to drop onto the main deck of *C-Enforcer*.

The wire reel contained replacement hoisting wire for the same crane conducting the lift. The wire reel weighed 338 MT, and the crane's original SWL was 400 MT. As part of the operating company's wire rope maintenance procedures and classification requirements, a sample of the crane's original hoisting wire, which had a minimum breaking strength of 13,300 kilo-newtons (1,356 MT), had been tested about 9 months earlier and broke at 9,850 kilo-newtons (1,004 MT). As a result of the break test, the vessel's operating company derated the crane to 320 MT to maintain a 3.1-to-1 safety factor—and to meet the 3.0 minimum safety factor required by the vessel's classification society. The operating company worked with the crane manufacturer to reprogram the crane's software to limit lifts to the reduced SWL. Therefore, the SWL was about 18 MT below the weight of the wire reel. However, the crane was also capable of temporarily exceeding the SWL by 10%, up to 352 MT (14 MT above the wire reel's weight), and the crane operator would have had to activate the override function to lift the wire reel on the day of the casualty (because the crane software would have sensed the lift weight and not allowed the lift to proceed). The 10% increase, or 32 MT, was marginal in relation to the 1,004-MT hoisting wire strength and 3.1-to-1 safety factor used to determine the crane's derated SWL.

A crane has a SWL to provide a margin for a safe lift considering degradation/corrosion, some shock loading, or other factors. Shock loading can occur when a sudden movement, or jerk, of a suspended load causes rapid acceleration and deceleration, creating a dynamic force that exceeds the static load. Shock loading may overcome the SWL, or load limitations, incorporated into the design of a crane and the specified wire rope. However, during the casualty lift, the *Island Venture* crane operator did not note any issues with the crane, nor did the rigger observe any sudden movements of the load. Therefore, there is no evidence that the hoisting wire rope or the crane were shock-loaded—either through sudden crane movement or failure of wire reel rigging—in such a way as to create a dynamic load on the wire rope during the lift. Consequently, the relatively small 18 MT that the lift exceeded the derated SWL likely should not have broken the hoisting wire, considering the crane's 3.1 safety factor.

After the casualty, the parted hoisting wire was visually examined by Coast Guard and National Transportation Safety Board investigators. The visual examination revealed oxidation (rust) of the external and internal strands of the hoisting wire. The outer layer of the remaining hoisting wire on board that was examined had minimum and intermittent aged grease coverage. The hoisting wire had been in service for 8 years, and during its service life, the wire was used in subsea operations and exposed to salt water, salt air, and humid conditions. These conditions can strip the lubricating grease from a wire, and, if salt water is not removed, it can cause oxidation and/or corrosion. Because the wire was 13,451 feet (4,100 meters) in length, a visual examination for corrosion would have been difficult to complete. Instead, a sample of the wire was regularly break-tested to verify its breaking strength and, thus, whether corrosion could be present. The hoisting wire had two break tests over its life (the last occurring 9 months before the casualty). Once the company identified that the wire's breaking strength had decreased from its original breaking strength, they derated the crane to a SWL of 320 MT.

The company's required maintenance procedures and tests as well as their designated safety factor for the crane were intended to ensure safe lifts over its life. The entire length of the hoisting wire could be re-lubricated using a process called high-pressure lubrication, but this process was time consuming and required the vessel to be offshore with adequate depth to pay out the wire. High-pressure lubrication was thus not practicable to be completed regularly—the manufacturer recommended this process be carried out every other year, and the company had last completed the process in April 2023. To reduce the effects of salt water, the crew typically completed a freshwater rinse of the crane's hoisting wire whenever they retrieved it from subsea operations. The most recent freshwater rinse had been completed about a month and a half before the casualty. According to maintenance records, the hoisting wire had been regularly maintained in accordance with the operating company's PMS. However, in the time between the break test and the casualty, and between rinses, the hoisting wire continued to be used for subsea work, exposing it to salt water, salt air, and humid conditions, which likely led to internal corrosion, as evidenced by the oxidation (rust) seen by investigators. The rate of degradation of the hoisting wire in the 9 months from the derating progressed beyond that anticipated by the company.

## 3 Conclusions

### 3.1 Probable Cause

The National Transportation Safety Board determines that the probable cause of the failure of the hoisting wire on the offshore construction vessel *Island Venture*'s crane was internal corrosion of the crane's hoisting wire.

**Vessel Particulars**

Vessel	<i>C-Enforcer</i>	<i>Island Venture</i>
<b>NTSB vessel group</b>	Offshore (Offshore supply vessel)	Offshore (Offshore construction vessel)
<b>Owner</b>	Offshore Service Vessels LLC. (Commercial)	Island Ventures 5 LLC. (Commercial)
<b>Flag</b>	United States	Vanuatu
<b>Port of registry</b>	Galliano, Louisiana	Port Vila, Vanuatu
<b>Year built</b>	1999	2017
<b>Official number</b>	1084510 (US)	N/A
<b>IMO number</b>	9219484	9721786
<b>Classification society</b>	American Bureau of Shipping	American Bureau of Shipping
<b>Length (overall)</b>	221.0 ft (67.3 m)	524.3 ft (159.8 m)
<b>Breadth (max.)</b>	56.0 ft (17.0 m)	98.4 ft (30.0 m)
<b>Draft (casualty)</b>	11.4 ft (3.5 m)	23.9 ft (7.3 m)
<b>Tonnage</b>	2,092 GRT	20472 GT ITC
<b>Engine power; manufacturer</b>	2 × 1,600 hp (1,193 kW); Caterpillar 3516 diesel engines	3 × 4,425 hp (3,300 kW); SCD 710 SRP azimuth thrusters

NTSB investigators worked closely with our counterparts from **Coast Guard Marine Safety Unit Houma** throughout this investigation.

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For more detailed background information on this report, visit the [NTSB Case Analysis and Reporting Online \(CAROL\) website](#) and search for NTSB accident ID DCA25FM030. Recent publications are available in their entirety on the [NTSB website](#). Other information about available publications also may be obtained from the website or by contacting—

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