



National Transportation Safety Board

Marine Accident Brief

Contact of Bulk Carrier *GH Storm Cat's* Crane with Zen-Noh Grain Facility

Accident type	Contact	No. DCA21FM006
Vessel name	<i>GH Storm Cat</i>	
Location	Zen-Noh Grain Facility, Lower Mississippi River, mile 163.8, Convent, Louisiana 30°3.87' N, 90°52.59' W	
Date	November 11, 2020	
Time	0910 central standard time (coordinated universal time – 6 hours)	
Injuries	None	
Property damage	\$481,006 est.	
Environmental damage	None	
Weather	Visibility 10 miles, clear, winds from north at 5 knots, air temperature 79°F ¹	
Waterway information	The Mississippi River at the Zen-Noh facility is one-third of a mile wide.	

On November 11, 2020, about 0910 local time, the bulk carrier *GH Storm Cat's* no. 1 crane boom contacted the Zen-Noh Grain Corporation facility in Convent, Louisiana, while the crew was completing corn-loading operations. The vessel was moored starboard side to with a crew of 19. No pollution or injuries were reported. The vessel's crane was undamaged; damage to the shoreside conveyor gallery was estimated to be \$481,006.



GH Storm Cat moored in Cork, Ireland, before the accident. (Source: Joe Moore)

¹ All miles in this report are statute miles (0.87 nautical miles).

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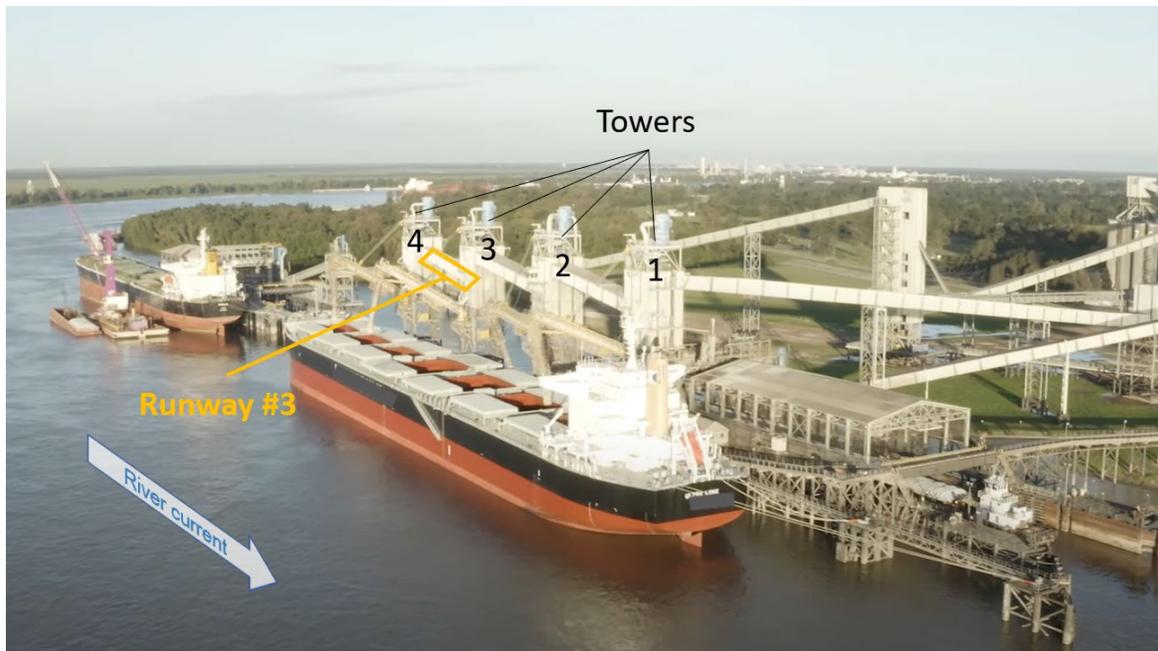
Area of accident where the *GH Storm Cat's* crane contacted the Zen-Noh shoreside conveyor runway, as indicated by the red triangle. (Background source: Google Maps)

Background

The *GH Storm Cat*, a dry bulk carrier, was built in 2014 in China. The 656-foot-long, Republic of Marshall Islands-flagged vessel was operated by Hong Kong-based Fleet Management Limited and classified by the American Bureau of Shipping. The vessel was equipped with four cranes used to transfer cargo and perform other shipboard tasks. The cranes were operated by the ship's crew, and each crane had a safe working load of 45 tons. Maintenance records indicated that the cranes were regularly inspected, maintained, and certified by the American Bureau of Shipping.

The Zen-Noh Grain Corporation (ZGC) facility, located on the left descending bank of the Lower Mississippi River at mile marker 163.8, was established in 1979. It specialized in the offloading of soybeans, corn, and other grains from barges, rail cars, and trucks, and the transfer of these commodities through a network of storage bins and elevators to ocean-going ships. The dockside portion of the facility consisted of four towers that acted as distribution points to transfer product to the ships. The towers were interconnected by elevated, enclosed structures known as runways. The three runways housed conveyor belts that transferred product between the towers and a walkway for personnel to pass. The facility operated 24 hours a day with its employees working rotating shifts.

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The ZGC shoreside facility before the accident. An unknown vessel, similar to the *GH Storm Cat*, is pictured. Runway no. 3 is highlighted with an orange rectangle. (Background source: ZGC)

Accident Events

The afternoon before the accident, on November 10, the *GH Storm Cat* heaved anchor and departed the Sunshine Anchorage at mile 165 of the Mississippi River. The vessel shifted about 2 miles down river to the ZGC facility, and, shortly thereafter, ZGC employees and vessel crew engaged in corn-loading operations from the shoreside facility into the vessel's five cargo holds. As each hold was filled with corn, a small tractor known as a payloader, owned by ZGC and operated by their employee, was used to level off the top of the cargo. ZGC



ZGC-owned and -operated payloader leveling off a cargo hold. (Source: ZGC)

employees and vessel crew coordinated to transfer the 8,180-pound payloader between cargo holds and to and from shore via the vessel's cranes, which were operated by a vessel crewmember.

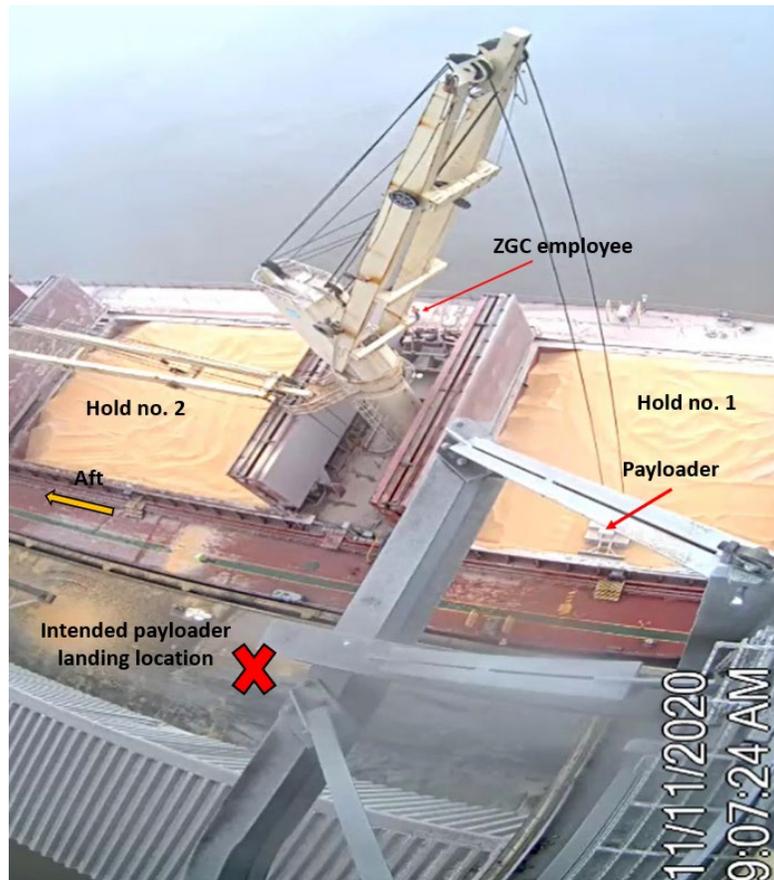
The morning of the accident, on November 11, about 0900, after the no. 1 cargo hold had been filled and the payloader had finished leveling the cargo, the ZGC shift supervisor requested that the vessel's crew remove the payloader from the hold and place it on the pier, an operation that they had completed several times throughout the loading process. The assigned crane operator for the payloader move was one of the vessel's ordinary seamen. The crane operator had operated

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the *GH Storm Cat's* onboard crane 15–20 times previously and had operated similar cranes on other vessels over 100 times.

At 0906, video footage recorded the crane operator positioning the hook of the no. 1 crane above the payloader in the no. 1 cargo hold. One of the ZGC employees who was working in the area attached the crane hook to the payloader, a task that had been completed by ZGC employees on several other occasions during the loading process. After making the connection, the ZGC employee exited the hold, appeared to make a hand gesture in the direction of the crane cab, and then crossed over to the port side of the vessel and walked aft, out of the view of the crane operator in the crane.

About a minute later, without the assistance of a signalman or spotter, the crane operator hoisted the payloader with the no. 1 crane clear of the no. 1 cargo hold hatch coaming and then slewed the crane to starboard.² After positioning the crane boom perpendicular to the vessel and suspending the payloader above the pier, the crane operator began lowering the boom of the crane to position the payloader to be landed on the pier.

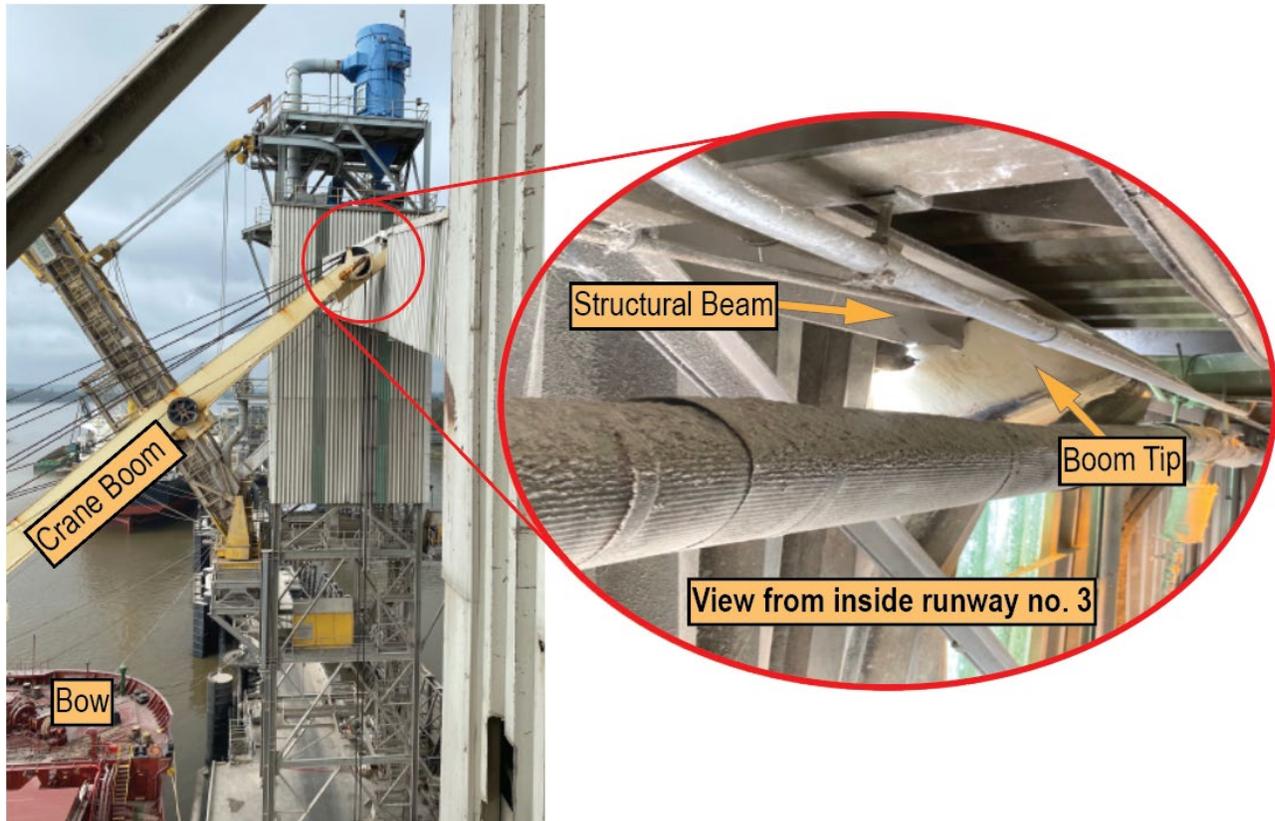


Video footage still image of the *GH Storm Cat's* crane during the initial sequence of the accident lift (lifting the payloader out of ship's no. 1 cargo hold). (Background source: ZGC)

At 0909:30, as the crane operator continued to lower the crane boom, still without the aid of a signalman or spotter on the vessel or pier, the boom tip contacted and penetrated the shoreside facility's no. 3 runway between towers no. 3 and no. 4.

² (a) A crane *signalman* or *spotter* is an individual trained in the the equipment being operated and acts as the eyes and ears for the crane operator when the operator is unable to see the entire operation from his/her location. Communications between the signalman and crane operator are traditionally hand signals. (b) *Coaming* is a raised frame (as around a hatchway in the deck of a ship) to keep out water. (c) A crane's *slewing* motion is the angular movement of a crane boom or crane jib in a horizontal plane.

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Point of contact of *GH Storm Cat's* crane boom and ZGC runway. (Source: ZGC)

Following the contact, the crane's cable was cleared of the runway, and the payload was safely lowered to the pier. Before removing the boom tip from the runway, staff on scene completed an initial damage assessment and took measures to temporarily support the runway. The crane boom remained in place while the ZGC assessed the damage. It was dislodged the following day by the movement of a passing vessel and then stowed by the crew.

There were no injuries reported, and the vessel's crane was undamaged. The top structural beam of the runway suffered localized deformation where the boom tip made contact. In addition, angle bracing near the area of impact was damaged. The corrugated tin sheets that enclosed the runway below the point of impact were also damaged. ZGC estimated the total cost to repair the damage was \$481,006. The facility returned to operation at a reduced loading rate on November 15 and increased to their normal loading rate two days later on November 17, 2020.

Additional Information

The *GH Storm Cat's* quality, health, safety, and environment (QHSE) manual contained information on shipboard crane operations. Section 9.10.6 of the manual, *Precautions while using Lifting Gear*, stated that crew involved in the lifting operation should, "Ensure that the operator and/or the signaler have a clear view for the whole path of travel for the load."

Following the accident, the crane operator indicated that he thought the ZGC employee who had attached the payload to the crane hook was acting as his signalman for the lift. The ZGC employee who had hooked up the payload told investigators that when vessels such as the *GH Storm Cat* use their cranes, they assign signalman duties to a vessel crewmember. Written

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statements supplied by the crane operator and the ZGC employee following the accident did not mention attempts made by either party to establish communications before or during the lift.

While this particular situation is best guided by a safety management system aboard the ship (in this case, the vessel's QHSE manual), the Occupational Safety and Health Administration (OSHA) provides guidance related to crane operations at marine terminals.³ In 2017, OSHA published a fact sheet on Shipboard Pedestal Crane Safety.⁴ The fact sheet provided employer checklists of OSHA requirements as well as industry best practices, including that "employers should verify that...A designated signal person is in place and trained on hand signals."

Vessels' international crews may sometimes refer to the United Kingdom's Maritime and Coastguard Agency, which publishes a "Code of Safe Working Practices for Merchant Seafarers" with best practices and guidance for improving health and safety on board ships.⁵ The code includes recommendations referencing crane operational safety measures and the use of a signalman, stating that the signalman should be "in plain view of the person to whom they are signaling." Additional associations that are often referenced in the offshore oil and gas industry, such as the American Petroleum Institute and the International Marine Contractors Association (IMCA), also offer standards and guidelines relating to lifting operations. Both recommend pre-lift planning and risk assessments to be completed by personnel involved in the lifting operation. Like the Maritime and Coastguard Agency, the IMCA emphasizes the importance of effective communications. The American Petroleum Institute stresses to "never start machine movement until the signalman is in sight and hand signals are understood."⁶ The IMCA adds that "operations should be halted if visual contact is lost" with the signalman.⁷

Analysis

The *GH Storm Cat's* company QHSE policy required crew to ensure that "the operator and/or the signaler have a clear view for the whole path of travel for the load" for lifts. In addition, industry standards organizations highlight the importance of pre-lift planning and risk assessment. Although the level of planning that went into the accident lift could not be determined because the personnel involved did not consider the lift to be complex enough to warrant a written lift plan, their level of planning was clearly inadequate. Both parties involved did not understand who the signalman would be, a critical position in the lift. The crane operator assumed the ZGC employee would be the signalman, but the ZGC employee stated he was not.

After the crane operator hoisted the payload from the top of the hold, he lost view of the ZGC employee who had made the connection, who he presumed would be the signalman for the lifting operation. Instead of stopping the lift and establishing communications with the signalman, as industry recommends, he continued to slew the load over the dock and lower the boom. Had the crane operator stopped the lift and attempted to establish communications when he lost visual contact with the ZGC employee, he would have discovered that he was operating without the aid

³ Title 29 *Code of Federal Regulations* Part 1917, Marine Terminals.

⁴ OSHA, *OSHA Fact Sheet: Commercial Fishing, Shipboard Pedestal Crane Safety*, <https://www.osha.gov/sites/default/files/publications/OSHA3913.pdf>.

⁵ Maritime and Coastguard Agency, *Code of Safe Working Practices for Merchant Seafarers*, 2012 edition, Amendment 5, October 2020.

⁶ American Petroleum Institute, *Rules To Live By*, 2018.

⁷ IMCA, *Guidance on operational communications*, 2010.

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of a signalman, who likely would have noticed the proximity of the crane boom to the runway and could have intervened to prevent the crane striking the structure.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the *GH Storm Cat*'s crane contact with the Zen-Noh grain facility runway was the absence of a dedicated signalman, which led to the ship's crane operator's misjudgment of the location of the crane boom while lowering the payload to the pier.

Vessel Crane Operations

All ships' crane lifts—no matter how routine—should be adequately planned and risk-assessed. All personnel involved in the lifting operation should be clearly identified and their duties understood before the start of the lift.

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Vessel Particulars

Vessel	<i>GH Storm Cat</i>
Owner/operator	<i>GH Storm Cat</i> LLC/Fleet Management Limited
Port of registry	Majuro, Marshall Islands
Flag	Marshall Islands
Type	Dry Bulk Carrier
Year built	2014
Official number (US)	N/A
IMO number	9663104
Classification society	American Bureau of Shipping
Construction	Steel
Length	656 ft (200 m)
Beam/width	106 ft (32 m)
Draft	43.6 ft (13.3 m)
Tonnage	36,294 ITC
Engine power; manufacturer	10,795 hp (8,050 kW); MAN B&W diesel engine, 5S60ME-C8.2
Persons on board	19

NTSB investigators worked closely with our counterparts from Coast Guard Sector New Orleans throughout this investigation.

For more details about this accident, visit www.nts.gov and search for NTSB accident ID DCA21FM006.

Issued: September 30, 2021

The NTSB has authority to investigate and establish the probable cause of any major marine casualty or any marine casualty involving both public and nonpublic vessels under Title 49 *United States Code*, Section 1131(b)(1). This report is based on factual information either gathered by NTSB investigators or provided by the Coast Guard from its informal investigation of the accident.

The NTSB does not assign fault or blame for a marine casualty; rather, as specified by NTSB regulation, “[NTSB] investigations are fact-finding proceedings with no formal issues and no adverse parties . . . and are not conducted for the purpose of determining the rights or liabilities of any person.” Title 49 *Code of Federal Regulations*, Section 831.4.

Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by conducting investigations and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report. Title 49 *United States Code*, Section 1154(b).
