



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

April 15, 2024

MIR-24-10

Fire aboard Commercial Fishing Vessel

Kodiak Enterprise

On April 8, 2023, about 0300 local time, a fire was discovered on the commercial fishing vessel *Kodiak Enterprise* while the vessel was docked at the Trident Seafoods facility in Tacoma, Washington.¹ The fire burned for 6 days before first responders declared it extinguished on April 14. No pollution or injuries were reported. The *Kodiak Enterprise*, which was declared a total loss, had an estimated value of \$56.6 million.

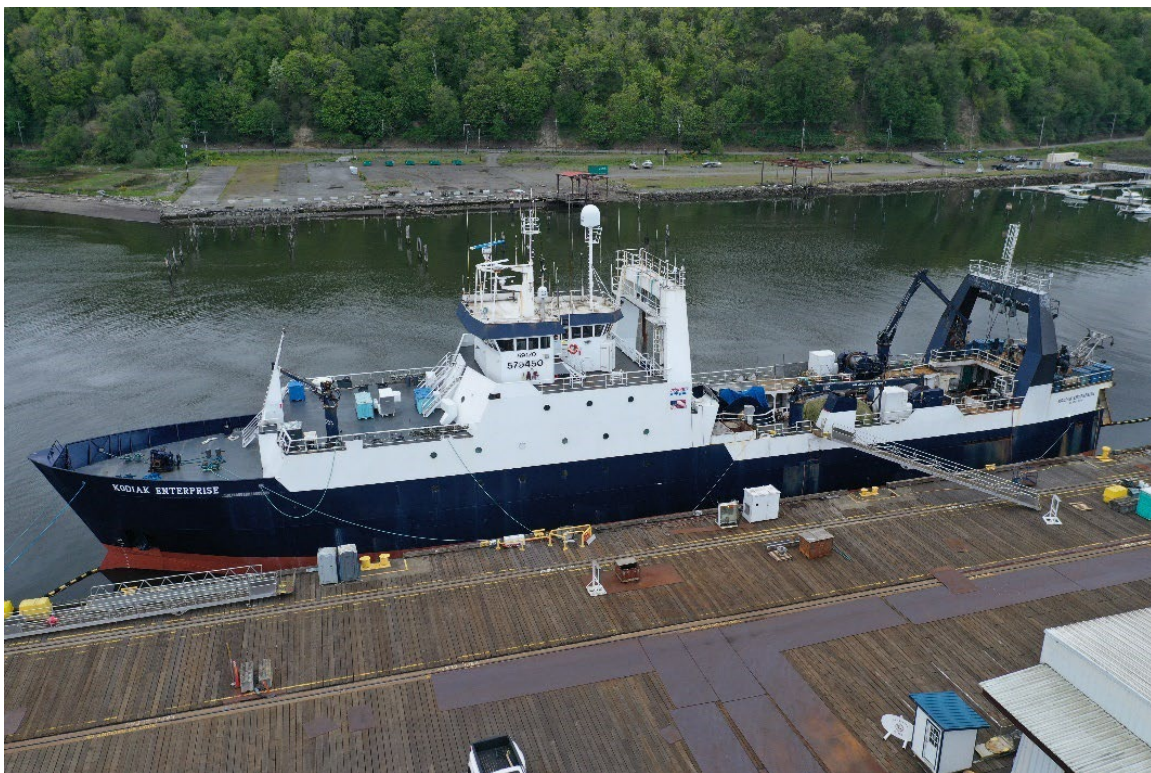


Figure 1. *Kodiak Enterprise* before the fire. (Source: Trident Seafoods)

¹ (a) In this report, all times are Pacific daylight time, and all miles are statute miles. (b) Visit [ntsb.gov](https://www.ntsb.gov) to find additional information in the [public docket](#) for this NTSB investigation (case no. DCA23FM026). Use the [CAROL Query](#) to search investigations.

Casualty type	Fire/Explosion
Location	Trident Seafoods facility, Pier 25, Tacoma, Washington 47°17.04' N, 122°24.62' W
Date	April 8, 2023
Time	0306 Pacific daylight time (coordinated universal time -7 hrs)
Persons on board	3
Injuries	None
Property damage	\$56.6 million est.
Environmental damage	Minor
Weather	Cloudy, visibility 2 mi, winds south 6 mph, air temperature 46°F, water temperature 44°F
Waterway information	Bay, width 4.6 mi, depth 606 ft



Figure 2. Area where the *Kodiak Enterprise* fire occurred, as indicated by a red X. (Background source: Google Maps)

1 Factual Information

1.1 Background

The 252-foot-long, steel-hulled commercial fishing vessel *Kodiak Enterprise* was built in 1977 at the American Marine Shipyard in New Orleans, Louisiana, and initially served as a tug supply vessel for the offshore drilling industry in the Gulf of Mexico (see figure 1). In 1989, Arctic Alaska Fisheries Corporation purchased the vessel and converted it into a stern trawler for the Alaskan commercial fishing industry. The company installed trawling machinery, rigging, and workrooms. A factory room was also added to process the catch, which was stored on the vessel until it returned to port. In 1999, Trident Seafoods Corporation purchased the *Kodiak Enterprise* and continued to operate it as a commercial fishing industry vessel.

The vessel had a bridge and six decks that included trawling equipment, a galley and dry stores, the fish processing factory, the engine room, and the refrigerated cargo hold (see figure 3). Crew accommodations were on decks 01, 02, and 03.

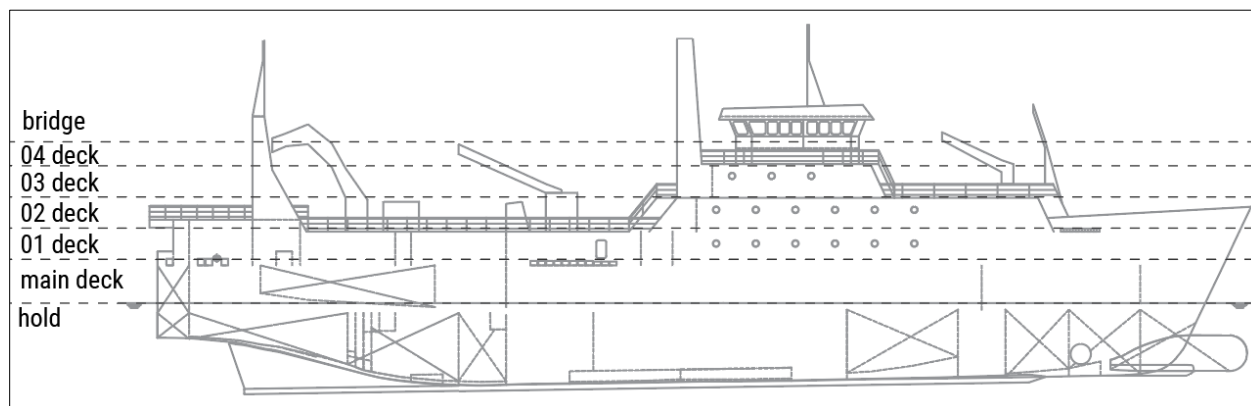


Figure 3. Vessel profile for the *Kodiak Enterprise*. (Background source: Trident Seafoods)

1.2 Event Sequence

On March 23, 2023, the *Kodiak Enterprise* docked at the Trident Seafoods facility, located at pier 25 in the Port of Tacoma, Washington, for a scheduled overhaul (see figure 2). The overhaul consisted of removal and replacement of wasted hull and bulkhead sections throughout the vessel, as well as engine and equipment maintenance. The vessel was connected to shore power, and four crewmembers (the chief engineer, assistant chief engineer, electrician, and a wiper) were living on board the vessel during the overhaul.

On April 7, about 1530, repair work on the vessel was completed for that day (see section 1.3.2 Repair Work for more information). Contractors secured the equipment and departed the vessel. At 1645, the assistant chief engineer inspected the work areas and did not find anything concerning.

From 1700 to about 2000, the chief engineer, the assistant chief engineer, and the wiper were off the vessel. The wiper returned to the vessel at 1900 and went to sleep at 2000. The chief engineer and the assistant chief engineer returned to the vessel at 2018, and they went to the galley to get a snack, which they ate in the mess. They then went to bed around 2200. They told investigators that they did not notice any signs of smoke or fire before going to bed. The electrician, who remained on the vessel for the evening, went to bed early; he departed the vessel for the airport at 0215 on April 8. He later told investigators that “everything was quiet and just normal.”

About 0300, the deckhand on board the passenger vessel *American Constellation*, which was docked about 200 yards away from the *Kodiak Enterprise*, was out on deck and saw smoke rising from the bow of the *Kodiak Enterprise* near an opening that was later identified as the deck locker door. When he approached the vessel to investigate, he smelled what he described as burning wood. At 0306, facility security camera footage of the *Kodiak Enterprise*'s bow and port side showed light smoke coming from the vessel. By 0308, the smoke was heavier, and, at 0310, the deckhand could be seen running to inform the Trident



Figure 4. Security camera footage of the *Kodiak Enterprise* with fire visible in the open watertight deck locker door (circled in yellow) on the foredeck and the deckhand from the *American Constellation* heading toward the guard shack at 0310. (Source: Trident Seafoods)

facility security guard of the fire (see figure 4). The guard, who was at the guard shack by the main gate, informed the deckhand that he had not received any notifications indicating that there was a fire on the *Kodiak Enterprise*.

After visually confirming that there was a fire on the *Kodiak Enterprise*, at 0319, the security guard called 911 and then contacted the Trident Seafoods Director of Marine Engineering to inform him of the fire. In turn, the Director of Marine Engineering contacted the chief engineer on the *Kodiak Enterprise* about the fire.

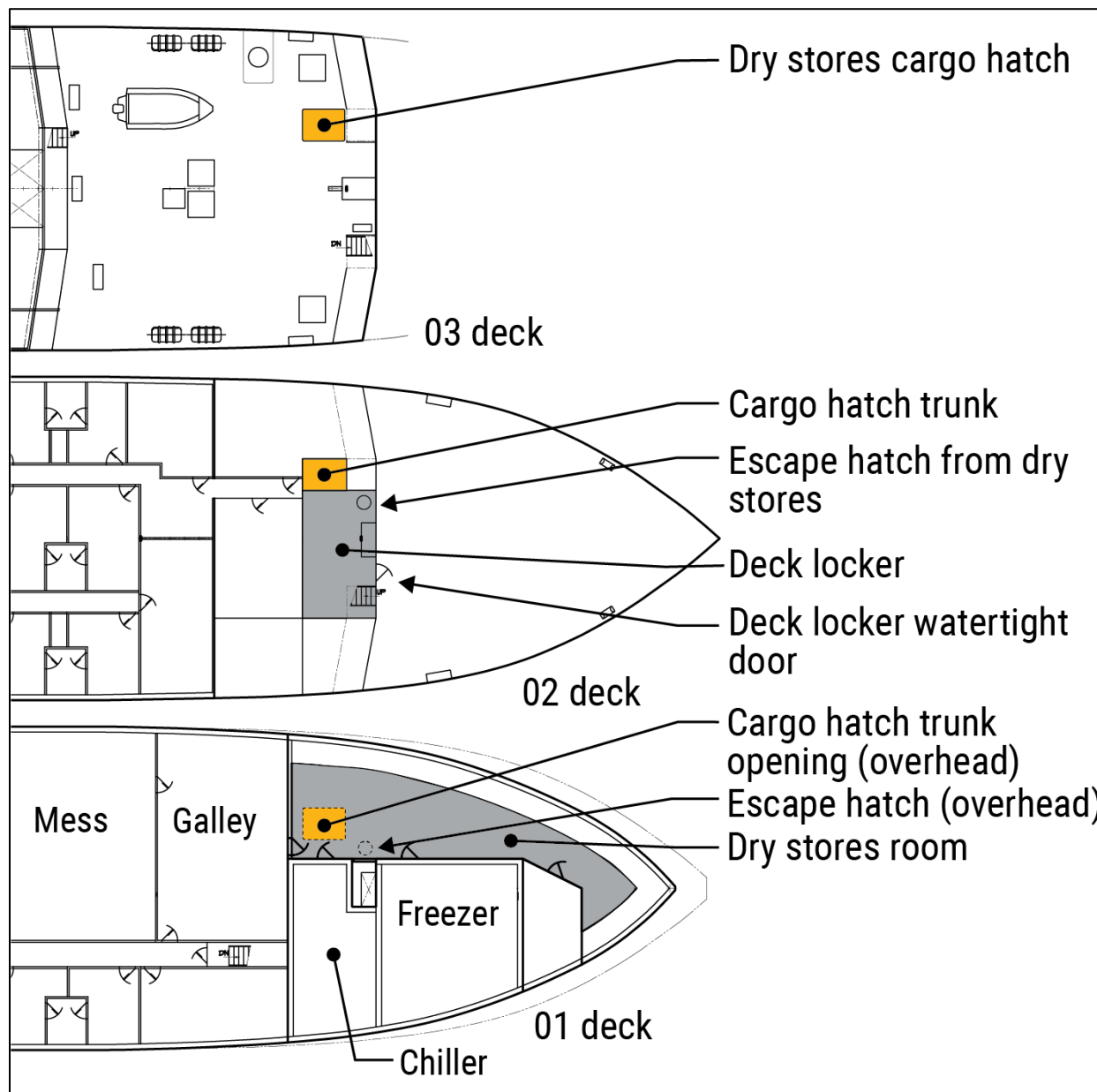


Figure 5. Plan view of the vessel decks showing the dry stores room and the trunk leading from the cargo hatch in the dry stores room to the 03 deck.

The chief engineer woke up the wiper and the assistant chief engineer. He proceeded through the vessel to investigate the source of the fire, noticing that the smoke was thicker on the 01 deck and seemed to be coming from the forward section of the vessel toward the galley. When the assistant chief engineer left his room on the 01 deck, he also noted smoke coming from the galley. All crewmembers on board evacuated.

By 0321, flames could be seen coming from the dry stores room cargo hatch on the 03 deck (see figure 5). At 0327, shoreside firefighters arrived; the crewmembers provided them with information on where they thought the fire was located (see figure 6). The firefighting teams entered the 01 deck of the vessel and proceeded through thick black smoke toward the galley. The chief engineer and the assistant chief engineer went back on board to start one of the generators to power the ballast pumps and transfer ballast within the hull to help prevent the vessel from heeling as water from the firefighting efforts accumulated within the vessel. At some point, the ballast pumps stopped working, so both crewmembers secured the generators and departed the vessel.



Figure 6. The *Kodiak Enterprise* on fire at 0328. (Source: J. Loring)

Due to the smoke, firefighters used a thermal imaging camera to find their way within the vessel and to identify hot spots and cool them down (see figure 7). The fire team got about 6 feet into the galley and was able to cool and extinguish the fire in that space, but the fire reignited, primarily on the starboard side of the bulkhead separating the galley from the dry stores room. The fire teams noted that there was no fire on the deck located below the 01 deck; however, a firefighter on the 01 deck noted that the 02 deck of the vessel above the mess was fully involved with fire, and he closed the fire door on the ladder well to prevent it from spreading down to their location.

As firefighting efforts continued, Trident Seafoods contacted Resolve Marine, an emergency marine firefighting, salvage, and pollution response company, in accordance with Trident's vessel response plan. Personnel from Resolve Marine

arrived on scene at 0615 and began to set up a command post to coordinate equipment to extinguish the fire and prevent marine and airborne pollution.

At 2058, the Tacoma Fire Department, working with Resolve Marine, switched to a defensive firefighting mode. They moved firefighting efforts to the exterior of the vessel to cool the hull and prevent the fire from spreading to the surrounding area (pier). On April 9, a unified command was established to coordinate efforts to extinguish the fire and remove hazardous liquids and materials (such as fuel, lube oil, and freon) to reduce the impact on the environment. The unified command included representatives from the US Coast Guard, Tacoma Fire Department, Resolve Marine, Trident Seafoods, the Environmental Protection Agency, and the Washington State Department of Ecology.

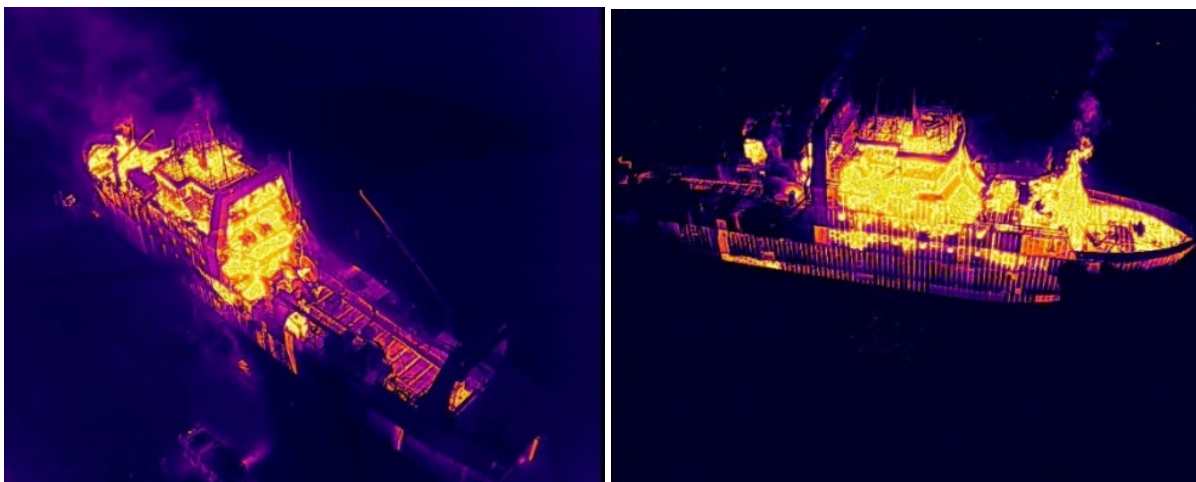


Figure 7. Thermal images of the fire within the *Kodiak Enterprise* on April 11, taken from a drone. (Source: Resolve Marine)

While the firefighters contained the fire, the unified command coordinated actions to monitor the vessel's list, remove accumulated firefighting water, and transfer ballast to ensure that the vessel did not lose stability. At various times over the next few days, fire teams entered the vessel as the fire decreased in intensity and began clearing and cooling the interior of the vessel.

On April 14, at 1600, nearly a week after the fire started, Resolve Marine and the Tacoma Fire Department declared the fire was out.

1.3 Additional Information

1.3.1 Damage

There was extensive smoke and thermal damage throughout the entire vessel due to the 6-day duration of the fire (figure 8). All of the equipment within the vessel were severely damaged, and significant sections of the overhead and bulkhead panels had collapsed due to the fire.



Figure 8. The *Kodiak Enterprise* stern after the fire.

1.3.2 Repair Work

On April 7, the day before the fire, contracted maintenance personnel aboard the *Kodiak Enterprise* conducted five repair jobs—four of which involved hot work.² The repair jobs were:

1. Bulkhead replacement on the hold deck (hot work).
2. Removal of a section of the 03 deck near the loading hatch (hot work).

² *Hot work* includes any work that involves using fire or spark-producing tools, including grinding, cutting, and welding.

3. Removal of wasted sections on the pilot house (hot work).
4. Vent pipe valve replacement throughout the vessel (hot work).
5. Piping replacement in the refrigeration space on the main deck.

As part of the work, the dry stores cargo hatch on the 03 deck was held open with a piece of wood so a plastic exhaust hose could pass down the trunk, through the dry stores room and galley, and down a ladder well to an exhaust blower in the bow thruster space. The vessel owner had policies for the preparation of hot work (such as ensuring all combustible material in the area was removed or sufficiently covered with a flame retardant material such as a fire blanket), safety procedures for conducting hot work, and guidelines for ensuring the hot work area was safe when a project was completed at the end of the day. The company policy also established a designated "fire watch person," who was required to stay at the hot work site for at least an hour after hot work had stopped. When investigators interviewed personnel who performed and supervised the hot work the day before the fire, they all indicated that the policies had been followed. Per the policy, the assistant chief engineer inspected all of the hot work areas; he did not find any safety concerns.

1.3.3 Fire Damage Investigation

The Coast Guard asked for the assistance of Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) certified fire investigators to determine the cause of the fire. On April 24, investigators from the Coast Guard, the ATF, and the NTSB boarded the vessel to investigate the cause of the fire.

Investigators examined the deck locker on the bow of the 02 deck, where the first sign of smoke was observed. At the time of the fire, the deck locker contained mooring lines. It also contained an emergency escape hatch from the dry stores room located directly below on the 01 deck (the hatch was found closed). The dry stores room was extensively damaged. The mess and the galley, aft of the dry stores room, were also extensively damaged (see figure 9).

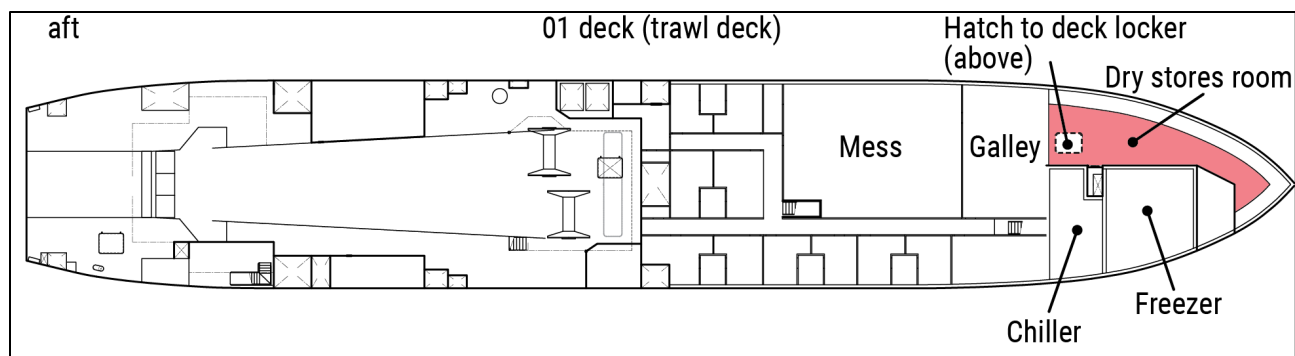


Figure 9. Plan view of the *Kodiak Enterprise* 01 deck showing the dry stores room, where the fire most likely originated. (Background source: Trident Seafoods)

The ATF fire investigator's origin and cause report noted that, although there was widespread damage throughout the vessel, the dry stores area had "specific and more isolated damage which could not be explained by ventilation, construction, fuel load, or uniform heat exposure." Photos of the dry stores room from before the fire showed wooden shelves holding cardboard boxes. The shelves and boxes were completely destroyed by the fire (see figure 10).



Figure 10. Left to right: The dry stores room, looking forward, before and after the fire. (Sources: Trident Seafoods, Coast Guard)

Investigators examined potential sources of the fire, such as the hot work to remove a section of the deck near the open hatch on the 03 deck, or a possible electrical failure. The origin and cause report for the fire stated that "the cause of this fire was determined to be an unknown electrical failure within the dry stores room."

The report detailed other potential ignition sources, including the hot work, the chiller compressors, light fixtures, the clothing washer and dryer, and all electrical outlets in the space (see figure 11).



Figure 11. The two compressors (circled in orange) in the dry stores room. The one for the freezer is on top; the one for the chiller is on the bottom . (Background source: ATF)

The origin and cause report ruled out hot work as the cause of the fire due to safety procedures that were used, including procedures for using fire blankets and implementing a fire watch, as well as an inspection of the project areas by the assistant chief engineer. Before the fire, there was no indication of a problem with any of the electrical equipment or systems, but since all of the electronic devices and the outlets sustained extensive fire damage, the report could not rule them out as potential sources of the fire.

1.3.4 Vessel Fire Detection and Notification System

Smoke detectors and heat detectors were distributed throughout the *Kodiak Enterprise*, including a smoke detector installed in the dry stores locker. The vessel's fire detection and notification system did not have an audible alarm that would sound throughout the vessel—instead, the system was designed so that, when

the detectors activated, an alarm would sound on fire alarm panels located on the bridge, the engine room, the watermaker room, and the refrigeration room. (When the vessel was in port, these areas did not have personnel standing watch.) The system was also programmed to display a notification on the computer in the chief mate's office, which was not occupied at the time of the fire.

When the system was set to port mode (as it was at the time of the fire), it was designed to send a text or email notification—in this case, an email to the Trident facility security guard and the Trident Seafood Director of Marine Engineering. The Director of Marine Engineering told investigators that, on March 31, he received a notification from the system in the bow thruster space. It was determined to be a false alarm from hot work being conducted in that space at the time.

The Director of Marine Engineering, the chief engineer, and the assistant chief engineer told investigators they believed that, on the night of the fire, the system was working and turned on. However, on the night of the fire, neither the Director of Marine Engineering nor the security guard received a notification. A postcasualty inspection of the system determined that it was extensively damaged by the fire.

2 Analysis

On April 8, a fire was discovered in the forward section of the commercial fishing vessel *Kodiak Enterprise* while it was docked at the Trident Seafood pier in Tacoma. By the time local firefighters arrived, the fire had spread to two decks. They quickly shifted to a defensive posture, and the fire burned for 6 days. The *Kodiak Enterprise* was declared a total loss.

On the evening before the fire, the four crewmembers who were on the vessel, including the electrician who woke up at 2330 and departed the vessel about 0215, did not notice any signs of smoke. The first indication of a fire on board the *Kodiak Enterprise* was about 0300, when the *American Constellation* deckhand saw smoke coming from bow of the *Kodiak Enterprise* near the open deck locker door on the 02 deck. After the chief engineer and the assistant chief engineer were notified of the fire, they noted smoke coming from the galley, which was on the 01 deck. Investigators examined the deck locker, mess, galley, and dry stores room; they found damage throughout all these areas, but there was more “specific and isolated damage” in the dry stores room. The dry stores room, which was on the 01 deck, contained a significant amount of combustible material before the fire, and it had an emergency escape hatch that led to the deck locker directly above it. The ATF fire investigator’s origin and cause report concluded that the fire originated in the dry stores room, however, due to the extensive damage, investigators from both the NTSB and the ATF could not definitively determine the cause of the fire within the dry stores room.

About 11 hours before the fire was observed, hot work was conducted on the vessel. However, there was no hot work in the dry stores room or in an adjacent space that could have allowed heat transfer to the dry stores room. Hot work was conducted next to the dry stores cargo hatch, two decks above the dry stores room. Although the hatch was partially opened, it would have been unlikely that any sparks or slag (molten material) could enter the partially opened hatch and, if they did, the sparks or slag would have landed on the loading area of the deck, which was not near any combustible material. When the assistant chief engineer inspected the work areas an hour after hot work was complete, he did not find anything concerning. Additionally, the chief engineer and the assistant chief engineer were in the galley and the mess (just aft of the dry stores room) at 2018 and did not notice any indication of a fire—had a fire in the dry stores room started due to the hot work earlier in the day, it likely would have been detectable by then. Based on the safety procedures, including a postwork inspection of the project areas, and the timing and location of the fire, investigators ruled out hot work as the cause of the fire.

Investigators considered other potential ignition sources, including improperly extinguished smoking material, the chiller compressors, light fixtures, the clothing washer and dryer, and all electrical outlets in the space. The origin and cause report concluded that the fire was likely caused by an unknown electrical source, which is supported by the amount of electrical items in the space—and therefore the amount of items that could have failed—and the lack of other potential ignition sources.

The vessel had a fire detection and notification system that was designed to send an alarm via text or email when it was set for in-port operation. The Director of Marine Engineering, the chief engineer, and the assistant chief engineer thought the system was turned on and properly working the night of the fire. However, neither of the system's shoreside contacts (the Trident facility security guard and the Trident Seafoods Director of Marine Engineering) received an alert message. As a result of the extensive fire damage to the fire detection and notification system, investigators were unable to determine why the wireless system did not notify the designated contacts.

The sleeping crew was first alerted to the fire by a call from Trident's Director of Marine Engineering, who received a call from the Trident security guard, who in turn found out about the fire from a deckhand from a nearby vessel. Therefore, by the time the crewmembers were notified of the fire, it had spread from the dry stores room into the deck locker and the galley and mess area. Had the fire detection and notification system operated as intended, the crewmembers would have had greater time to evaluate and potentially attempt to extinguish the fire.

The fire detection and notification system was not designed to activate an audible alarm throughout the vessel; instead, the fire detection alarm on board only sounded at the bridge, the engine room, the watermaker room, and the refrigeration room, which were not crewed while the vessel was docked. Additionally, the crewmembers living on board were not listed among the notification system's designated contacts. The crewmembers living on board while the vessel was docked thus did not receive a notification from the fire detection and notification system and did not hear an alarm, nor would they have while in their quarters. Therefore, even if the fire detection and notification system had operated as intended, because it was not connected to a vessel-wide alarm and crewmembers on board were not included in the system's contacts, it would not have notified the crewmembers living on board the vessel.

3 Conclusions

3.1 Probable Cause

The National Transportation Safety Board determines that the probable cause of the fire aboard the *Kodiak Enterprise* was an unknown electrical source within the dry stores room. Contributing to the risk to the onboard crewmembers and to the severity of the fire was the vessel's inadequate fire detection and notification system, which was not designed to sound in crew accommodation spaces, and failed to wirelessly alert shoreside contacts.

3.2 Lessons Learned

In-port Fire Detection and Notification Systems

Vessel wireless monitoring and notification systems with an "in-port" setting notify operators of a potential emergency when a vessel is moored at the dock and crews are not standing a 24-hour watch. Vessel operators should test the system on a set schedule to ensure it properly notifies the recipients of the alert. When the vessel is undergoing repair work that can cause false alarms, such as hot work, crewmembers should check the fire detection and notification system to ensure it is operating following the completion of work. Additionally, crewmembers living or staying on board a vessel while it is in port should be included on the system's designated contacts to be notified immediately in case of a fire or other emergency.

Vessel	<i>Kodiak Enterprise</i>
Type	Fishing (Fishing Vessel)
Owner/Operator	Trident Seafoods (Commercial)
Flag	United States
Port of registry	Seattle, Washington
Year built	1977
Official number (US)	579450
IMO number	7517703
Classification society	American Bureau of Shipping
Length (overall)	252.3 ft (76.9 m)
Breadth (max.)	44.0 ft (13.4 m)
Draft (casualty)	31.5 ft (9.6 m)
Tonnage	3,382 GT ITC
Engine power; manufacturer	2 x 3,240 hp (2416.1 kW); Twin Alco 251FV 1C V-16 diesel engines

NTSB investigators worked closely with our counterparts from **Coast Guard Sector Puget Sound** 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 DCA23FM026. 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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