October 20, 2025 MIR-25-39

Engine Room Fire aboard Dredging Vessel *Stuyvesant*

On November 2, 2024, about 1435 local time, the dredging vessel *Stuyvesant*, with a crew of 22, was holding station in the St. Johns River, near Jacksonville, Florida, when a fire broke out in the engine room (see figure 1 and figure 2).[1] Two crewmembers were in the machinery control room when the fire started: one escaped, and the other was removed by the shipboard emergency squad and later pronounced dead at a local hospital. After reporting no active fire and removing the crewmember, the crew verified that the engine room was sealed and released the fixed gas fire extinguishing system. No pollution was reported. Damage to the vessel was estimated at $18 million.[2]

Figure 1. *Stuyvesant* underway in 2022. (Source: The Dutra Group)

[1] In this report, all times are eastern daylight time, and all miles are statute miles.

[2] Visit ntsb.gov to find additional information in the public docket for this NTSB investigation (case no. DCA25FM004).

Casualty Summary	
NTSB casualty category	Fire/Explosion
Location	St. Johns River, Jacksonville, Florida 30° 24.009'N, 81° 24.02'W
Date	November 2, 2024
Time	1435 eastern daylight time (coordinated universal time –4 hrs)
Persons on board	24 (22 crew, 2 observers)
Injuries	1 fatal
Property damage	$18 million est.
Environmental damage	None
Weather	Visibility 10 mi, overcast, winds 13 kts, air temperature 83°F, morning twilight 0718, sunrise 0743
Waterway information	River; depth about 47 feet

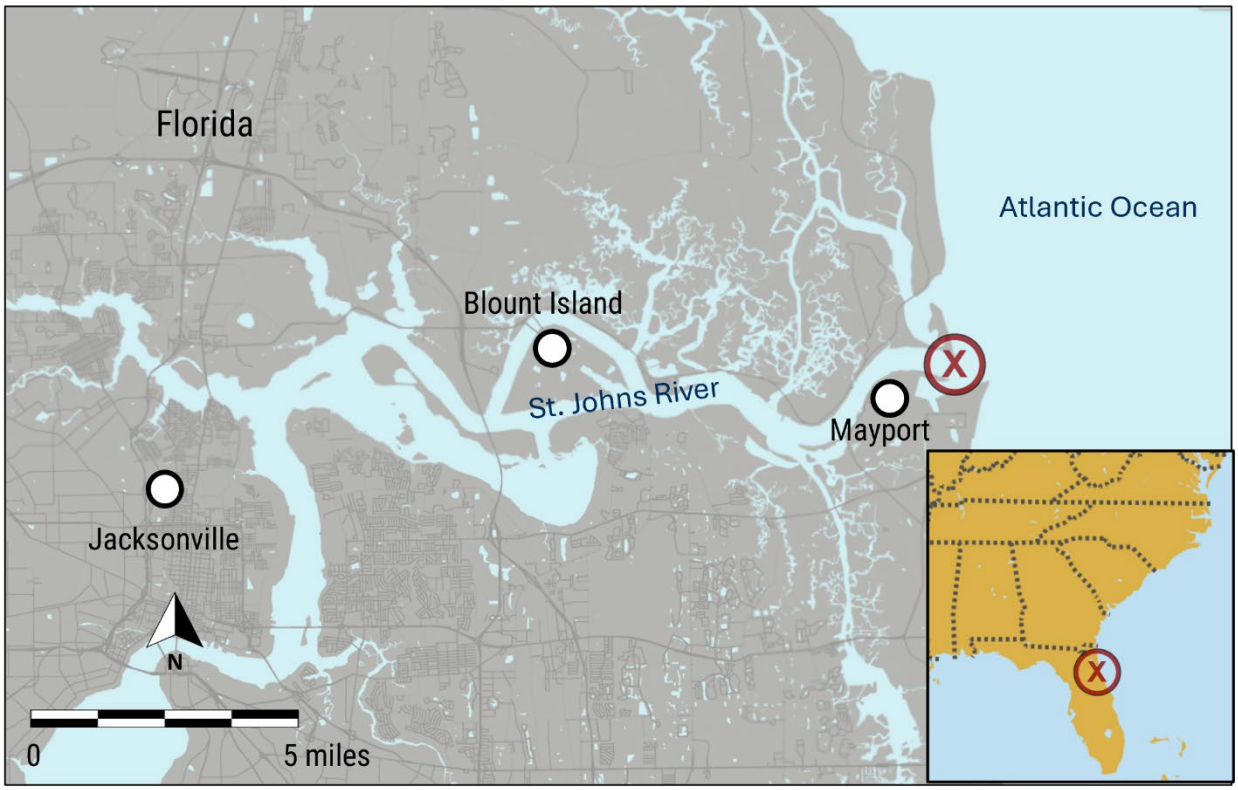

Figure 2. Area where the fire broke out aboard the *Stuyvesant*, as indicated by a circled *X*. (Background source: Google Maps)

1 Factual Information

1.1 Background

The 392.7-foot-long, US-flagged *Stuyvesant* was a trailing suction hopper dredger constructed of welded steel and built by Avondale Shipyard in New Orleans, Louisiana, in 1982. The *Stuyvesant* was owned and operated by The Dutra Group. The vessel was used to maintain waterways, reclaim land, and aid in coastal and beach restoration. The vessel's self-contained dredging systems excavated soft materials, such as sand and mud, from the seabed into its onboard hopper and then discharged the collected material at other locations. The vessel was designed to dredge at depths up to 131 feet (40 meters), and the hopper was equipped with 20 sets of hydraulically operated doors for material handling.

Two 6,900-hp (5,145-kilowatt) diesel engines, each driving a controllable pitch propeller, provided propulsion. A 1,850-hp (1,380-kilowatt) bow thruster, driven by an electric motor, assisted with maneuvering. Two main engine shaft-driven generators and two 2,442-hp (1,821-kilowatt) Caterpillar 3512C auxiliary diesel engines, each coupled to an electric generator, provided electrical power for the vessel.

The auxiliary diesel engines could be started from three locations: locally at a control panel next to the engines, remotely from the machinery control room (MCR), or remotely from the wheelhouse.[3] Each engine was equipped with a pre-lube pump that circulated pressurized lube oil throughout the stopped engine after receiving a start signal and before the engine began the starting sequence.[4] The two auxiliary engines had been installed aboard the *Stuyvesant* in December 2022, replacing older engines that had reached the end of their service life. The engine's operation and maintenance manual indicated that the engines (with deep sump) had an approximate lube oil capacity of 162–165 gallons.

1.2 Event Sequence

On October 12, 2024, the *Stuyvesant* departed Jacksonville and began maintenance dredging work under contract with the US Army Corps of Engineers,

[3] The operating company and vessel crewmembers referred to the engine control room as the machinery control room (MCR), which is used throughout this report.

[4] According to company representatives, the engine run command initiated the pre-lube pump and the engine start commenced once 6 pounds per square inch ["pressure"?] was reached or after 2 minutes of run time, whichever occurred first.

Jacksonville District. This work involved dredging material at the Mayport US Naval Station near Jacksonville and in Jacksonville Harbor. Project completion was estimated to be November 30, 2024.

On November 1, while the dredging work was ongoing, 23 crewmembers and two protected species observers were aboard. The deck department consisted of a captain, four mates, a bosun, three deckhands, and two welders. The engine department consisted of a chief engineer, first engineer, two (third) watch engineers, an electrician, two oilers, and a wiper. Two dragtenders and two steward department personnel were also aboard. While dredging, a tugboat remained near the *Stuyvesant* to assist with maneuvering if needed.

During a break in dredging operations, the engineering crew planned to conduct routine maintenance on the portside auxiliary diesel generator engine to replace the lube oil and fuel oil filter elements and the lube oil in the sump (see section 1.3.3).[5] The third engineer and oiler who stood the 1200-2400 watch were assigned to the maintenance project. However, according to an entry in the logbook on November 1, the crew did not have enough time to complete the engine maintenance work, so it was postponed until the following day.

On November 2, the daily vessel-wide safety meeting was held at 0630, and shortly afterward, the 1200-2400 third engineer reported that he was not feeling well and was taken off the vessel. He was transported to a medical clinic, and he was unable to stand the remainder of his watch.

About 0930, after the third engineer had departed the vessel for the clinic, the chief engineer assigned the day-working (0600-1800) first engineer to cover the absent third engineer's 1200-2400 watch and sent him to rest until noon.

About 1130, the vessel completed dredging operations and headed outbound to dump the dredge spoils. Due to a tide shift, the vessel returned to the channel. While the vessel was holding station, two crewmembers conducted repairs with a workbasket in the hopper, while the captain stayed on deck to oversee the operation and ensure it was completed safely.

While the vessel was holding station, the dredging equipment was shut down, reducing the vessel's electrical load, and the port auxiliary engine was not required to be operational. The engineering crew took this as an opportunity to conduct the routine maintenance on the engine that had been planned for the previous day. At

[5] The portside auxiliary diesel generator engine is referred to as the port auxiliary engine throughout this report.

noon, the first engineer and the oiler assumed the watch. At 1309, the engine crew took the port auxiliary generator offline and shut the engine down at 1325. The vessel's two main engines continued to operate to hold the *Stuyvesant* in position, with the shaft generators providing electrical power.

After 1325, the first engineer, oiler, and wiper started the maintenance on the port auxiliary engine. The oiler stated that, prior to performing work on the engine, the first engineer closed the engine start air valve and placed a lock on it as part of the lockout procedure (to safeguard crewmembers from an accidental start command). The crewmembers drained the lube oil from the lube oil filter housing and the engine's sump and removed the lube oil filter's housing cover to access the filter elements (see figure 3). The waste oil from both the lube oil filter housing and the sump drained into a pipe that routed into the dedicated dirty oil tank below the engine. At some point, one of the crewmembers removed the plug from the top of the lube oil filter housing and placed it on a nearby metal storage cabinet.[6] The oiler told investigators that the first engineer replaced the lube oil filter elements and he believed the wiper reinstalled the lube oil filter housing cover and subsequently changed the fuel oil filters.

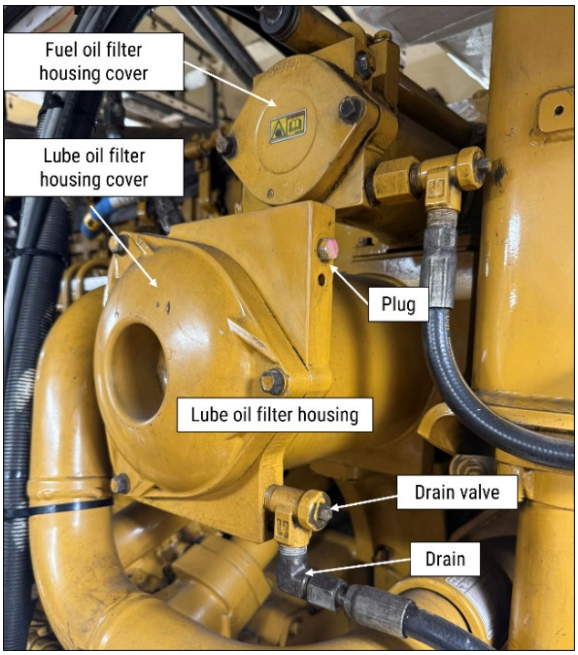

Figure 3. Photo of forward end of a Caterpillar 3512C diesel engine, depicting lube and fuel oil filter housings and filter change components. (Background source: The Dutra Group)

[6] The plug in the filter housing allows for pressure equalization by letting air flow in or out when opened, which aids in filling and draining the filter and prevents damage from pressure buildup or vacuum.

After replacing the filters, the crew removed the filler cap on the inboard side of the port auxiliary engine to begin refilling the lube oil sump. They inserted the end of a flexible hose into the oil filler tube. The flexible hose was connected to a permanently mounted pneumatic pump that drew lube oil from a storage tank on the starboard side of the vessel and discharged to an athwartships pipe in the overhead (there was another flexible hose on the other, starboard end of the pipe). For the oil transfer, the oiler was stationed at the pump across the engine room, and the wiper was stationed at the port auxiliary engine monitoring the oil level.

While the engine was being filled, the oiler began to feel sick. He went to sit under a ventilation blower. (That evening after the fire, he departed the vessel with the majority of the crew and reported to a medical clinic the following day). The first engineer took his place at the oil transfer pump. While the oiler was sitting under the blower, the wiper walked past him and said the engine sump was filled with oil and that he was leaving the engine room to go on break. After cooling down, the oiler closed the lube oil tank valve to the pump and checked the oil level in the engine. He noted it was at the proper level, then went to the MCR on the tween deck and sat down at the desk there. About a minute later, the first engineer entered the MCR holding a lock out tag. He told the oiler that he had unlocked the port auxiliary engine start valve and that "it was all good."

At 1427, the first engineer called the wheelhouse and advised the watchstanders that the oil change was complete. One of the deck watchstanders remarked during the call, "that was quick." The first engineer then started the engine remotely from the MCR.

Less than a minute after the engine was started, as the first engineer and oiler prepared to make a round of the engine, they saw flames in the engine room through the portside MCR window. About 1435, crewmembers welding in the hopper on the foredeck saw smoke coming from the engine room vents on the forward side of the superstructure and advised watchstanders in the wheelhouse about the smoke via handheld radio. (The engine room was not equipped with smoke detectors, nor was it required to be.)

According to the oiler, the first engineer opened the portside MCR door and flames entered the MCR. The oiler and first engineer went to the starboard side of the MCR; the first engineer opened the MCR door and entered the engine room with a fire extinguisher. At 1436, the oiler answered the ringing MCR sound-powered phone and reported the engine room fire to the wheelhouse. The oiler told investigators that, as he approached the threshold of the starboard side of the MCR door, he saw the whole engine room go dark with smoke, and that he could not breathe. The oiler turned around and climbed up the ladder in the emergency escape trunk on the

forward bulkhead of the MCR, which led up to the athwartships passageway of the main deck, and then up through a second escape hatch to the poop deck (see figure 4). When he exited the escape hatch, he told the wiper and electrician in the nearby lounge that there was a fire in the engine room.

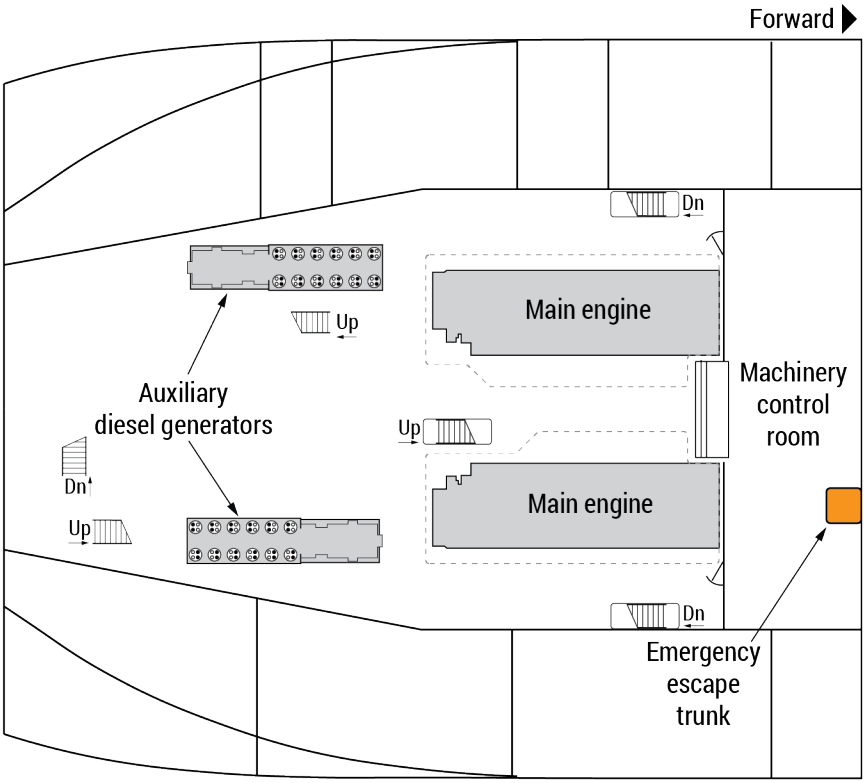

Figure 4. Layout of the engine room tween deck aboard the *Stuyvesant*. The main engines were located on the deck below.

At 1437, the captain ordered the general alarm to be sounded and the crew to muster at the emergency gear locker on the starboard side of the boat deck. At 1439, after the chief engineer checked both entrances to the engine room and discovered that the engine room was smoke filled and that he was unable to gain entry, the chief engineer went to the wheelhouse and activated the emergency stops for the main engines, which shut down propulsion, shaft generators, lighting, and ventilation to the vessel. The emergency generator automatically started, came online, and provided emergency lighting and power to vital equipment (such as navigation equipment, emergency lighting throughout the engine room and vessel, and an emergency fire pump). Seconds after the engines stopped, the captain directed a deck crewmember to let go the anchor.

About 1442, deck crewmembers notified the assist tug of the fire and requested a line be connected from the tug up to the starboard quarter of the

Stuyvesant. The chief engineer advised the *Stuyvesant* captain that the escape hatch from the MCR was relatively clear of smoke, the fire was above the port main engine, and that the first engineer was still in the engine room. Noting the first engineer's absence during muster at the emergency gear locker, crewmembers comprising the vessel's emergency squad began donning firefighting gear, including self-contained breathing apparatus (SCBA), to search for the missing engineer in the engineering spaces. Deck crewmembers used a handheld radio to call the first engineer twice, but there was no response. The captain rang the general alarm again.

About 1450, the captain directed crewmembers to start the emergency fire pump and called the Coast Guard on VHF radio to notify them of the emergency.

About 1454, crewmembers set up a rescue tripod above the MCR escape trunk but due to smoke in the athwartships passageway they relocated it to above the upper escape hatch on the poop deck.[7] The chief engineer assisted emergency squad team members entering through the hatch by making sure their SCBA tanks and gear did not catch on the rim of the escape hatch. At 1457, the captain received an update that crewmembers in firefighting gear were in the engine room looking for the first engineer, and they reported no active fire at the time.

At 1500, the Coast Guard advised the captain that they were en route, in addition to several other agencies.

The shipboard emergency squad located and extracted the first engineer from the MCR; however, he was not responsive. Once up on deck, the crew administered cardiopulmonary resuscitation and activated the automatic external defibrillator.

About 1530, Coast Guard and Jacksonville Fire Department vessels arrived at the *Stuyvesant*, and the crew reported to the Coast Guard that the fire was out. The ship's crew continued administering CPR to the first engineer until the local fire and rescue team boarded the vessel and took over. The first engineer was lowered in a stokes litter to a Coast Guard vessel and taken ashore to awaiting emergency medical care. He was then transported to a local hospital in Jacksonville. A few hours later, he was flown by helicopter to another hospital in Gainesville, Florida, where he was declared dead.

Back on the *Stuyvesant*, after all crewmembers had exited the engine room, the chief engineer verified that all dampers were closed. After advising the senior local fire supervisor on scene, he activated the fixed carbon dioxide (CO_2) fire

[7] A rescue tripod is a three-legged, portable device used to provide a stable anchor point for lifting and lowering personnel and equipment in confined spaces.

suppression system into the engine room from the forward releasing station by pulling the two cables—one for the valve release and one for the cylinder release. The valve release operated properly, but the chief engineer stated that the cylinder release cable felt like it "fetched up" on something. He went to the aft station and pulled the cylinder release cable, and CO_2 released into the engine room.

After releasing the CO_2, the chief engineer noticed that the intake dampers had been closed for air supply to the emergency generator engine, which resulted in a shutdown of the emergency generator caused by a lack of air, and subsequent loss of emergency electrical power to the vessel. A crewmember used an oxygen meter from the local fire department and a second meter from the ship to determine that the emergency generator room was safe to enter. However, when the crewmember tried to hydraulically start the engine, the meter alarmed with an unsafe atmosphere reading, and the crewmember retreated from the emergency generator room.

The crew began monitoring the temperature of the engine room bulkhead. A photo of the portside exterior bulkhead in the upper engine room showed a log of temperatures starting at 103°F and decreasing to 81.1°F the following morning. The following day the vessel was towed to a shipyard in Jacksonville.

1.3 Additional Information

1.3.1 Damage

After the fire, National Transportation Safety Board and Coast Guard investigators examined the damage to the engine room and MCR. About 300 electrical and signal cables in the engine room in the area forward and above the port main engine were burned by the fire and required replacement (see figure 5). Inside the MCR, the machinery control system and the main electrical switchboard were damaged beyond repair and required replacement.

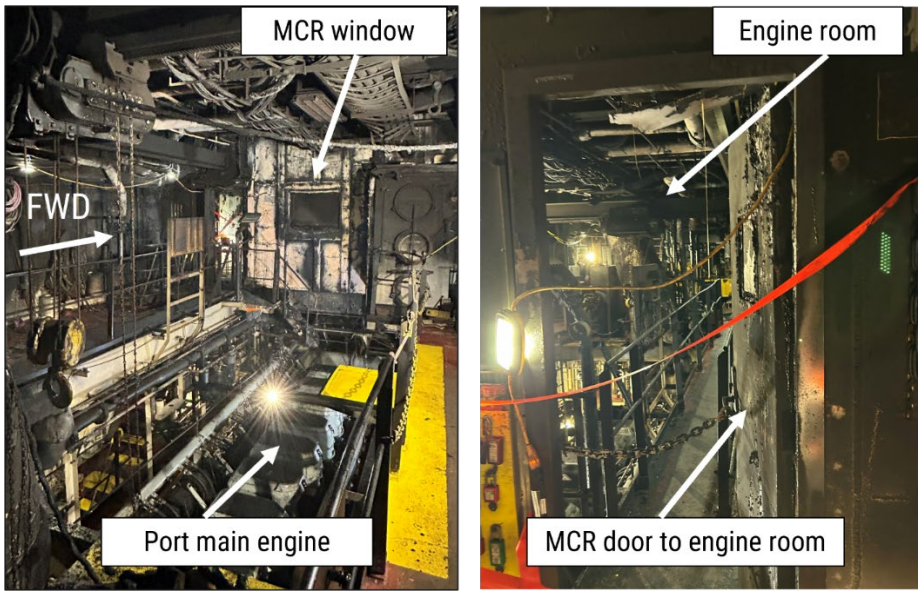

Figure 5. *Left to right*: Upper engine room and MCR after the fire.

Investigators found the fuel and lube oil filters that had been removed during the routine maintenance from the port auxiliary engine in buckets near the engine unburned and intact. The lube oil fill cap on the port auxiliary engine had not been reinstalled, and the lube oil filter housing plug was not threaded into the internally threaded port; it was found sitting with a wrench on a nearby storage cabinet (see figure 6). The plug's O-ring was intact and not affected by fire. The internally threaded port on the portside auxiliary engine's lube oil filter housing faced forward toward the port main engine and MCR (see figure 7).

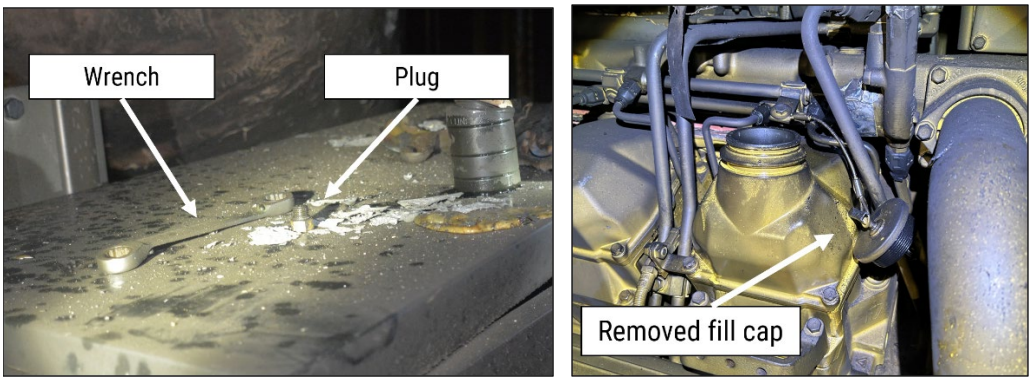

Figure 6. *Left to right*: Removed plug on top of storage cabinet and removed fill cap from port auxiliary engine. (Source [*right*]: Coast Guard)

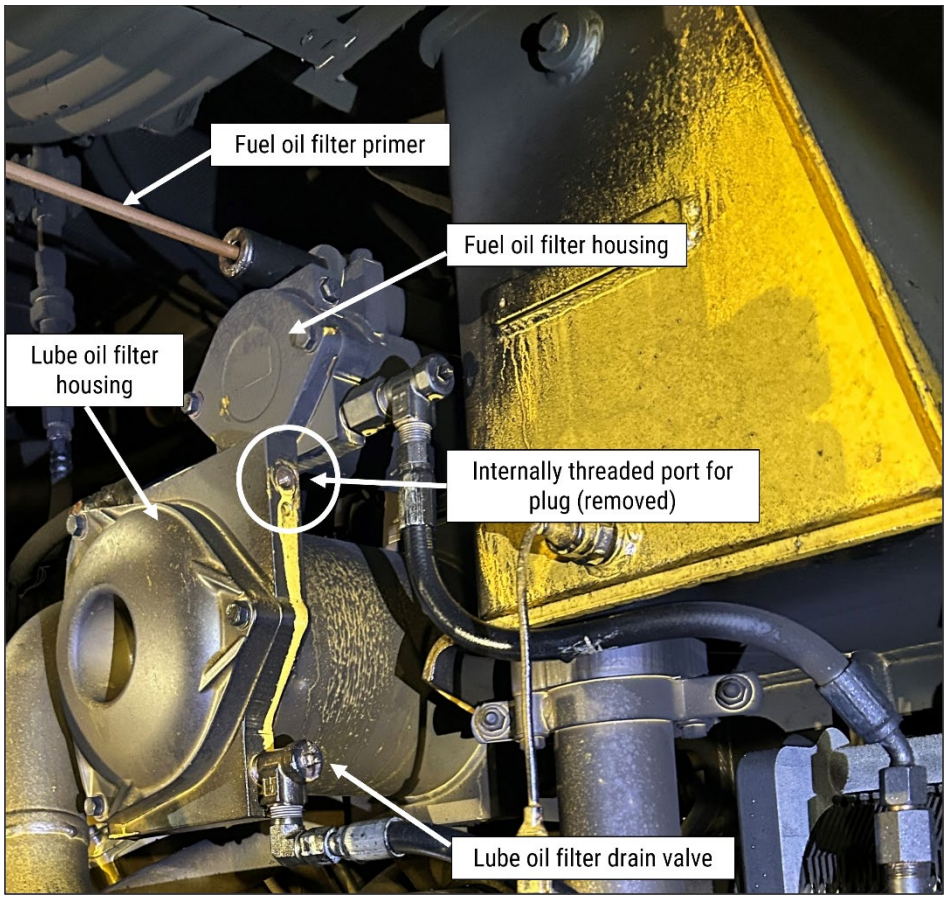

Figure 7. Port auxiliary engine lube oil filter housing aboard *Stuyvesant* after the fire. The internally threaded port with the missing plug is circled at the top of the lube oil filter housing.

Inside the MCR, investigators found two unopened, undamaged emergency escape breathing devices in their cases mounted on the bulkhead near the portside door to the engine room. Additionally, they found an unused and unopened SCBA in its case on the port side of the MCR. The vertical ladder in the escape trunk leading to the hatch on the starboard side of the MCR was unobstructed.

After the fire, service technicians inspected the port auxiliary engine. They measured 11.5 inches of lube oil in the sump, which equated to about 105 gallons (the full mark on the dipstick corresponded to about 162 gallons), indicating the sump was about 57 gallons low. The technicians did not believe the engine had been damaged by a lack of lube oil.

1.3.2 Port Auxiliary Engine Data

On November 10, service technicians attempted to download data from the port auxiliary engine's electronic control module (ECM); however, they were unable

to power up the harness to the ECM to access its data due to an electrical short.[8] The technicians recommended inspecting the turbochargers, checking all cylinders with a borescope, testing all wiring harnesses, and opening and inspecting the generator ends, including conducting electrical and insulation testing. They also recommended inspecting all wiring.

Information from a third-party engineering firm report indicated that the port auxiliary generator was taken offline at 1309 and the engine was shut down at 1325. The system showed a run command initiated at 1435, which would start the pre-lube pump. At 1437, an "unintended stop" was recorded. The engine runtime was estimated to be about 2.5 minutes. The report stated that the cause of the unintended stop may have been due to a loss of 24-volt power supply when cabling was destroyed in the fire.

Engine logbooks indicated the lube oil pressure, delivered by an engine-driven gear pump, on the port auxiliary engine was 65 pounds per square inch (psi), and the exhaust temperatures of the port main engine ranged from 614°F to 742°F while operational during the 0000-0600 watch.

1.3.3 Lube Oil Change Procedures

The port auxiliary engine manufacturer recommended replacing the engine's lube oil and fuel oil filter elements, as well as the engine's 15W-40 lube oil in the sump, after every 1,000 running hours. The company's safety management system stated: "Manufacturer's instructions should be followed whenever work is carried out on the engine."

Instructions for how to perform a lube oil change and fuel oil filter element change could be found in the operation and maintenance manuals aboard the vessel (in the MCR and chief engineer's office). To drain the lube oil from the lube oil filter housing, the directions instructed crewmembers to:

1. ensure a hose was connected to the drain, which was a permanent installation on the *Stuyvesant*;
2. open the drain valve and then remove the plug;
3. clean the plug and reinstall it; and
4. close the drain valve.

[8] The technicians stated that it was possible that the fire had shorted the data link network in the vessel, which then shorted the communications modules in the ECM.

The engine manufacturer instructed a thorough walk-around inspection before starting the engine, looking for oil or coolant leaks, loose bolts, and trash buildup. There were specific instructions for inspection of the air inlet system, cooling system, driven equipment, electrical system, fuel system, lubrication system, and the starting system.

The last time this maintenance was performed was on July 6, 2024, when the engine had 4,023 running hours. The next scheduled maintenance was due when the engine had 5,023 running hours. At the time of the casualty, the engine had 5,747 running hours. The lock out/tagout log was kept electronically on a tablet in the MCR. Data from the engine room tablet could not be accessed after the fire.

1.3.4 Engineering Crew

The chief engineer had worked aboard the *Stuyvesant* since 1999, in all credentialed positions.

The first engineer held a credential as a chief engineer and had about 12 years of experience in the maritime industry. He had been with the company for three previous rotations on the *Stuyvesant* as first engineer, joining *Stuyvesant* for the first rotation in April 2024, and starting the most recent rotation on October 16, 2024. Hiring records showed that the first engineer had experience with 35-series Caterpillar engines. He completed the company's vessel familiarization program from April 29 to May 5, 2024, which included essential instructions such as station bill assignments, emergency escape routes, fire, lifesaving, safety, and security topics. The engine department-specific orientation was completed on May 6, 2024. The work/rest history sheet for the first engineer indicated that he had worked 10.5 hours each day of the week before the fire, with 13.5 hours of rest each day.

On October 28, 2024, the vessel crew conducted an emergency drill, which consisted of a simulated report of smoke in the athwartships passageway to which the MCR emergency escape trunk leads. The emergency squad members donned firefighting gear and simulated investigating and fighting a fire. According to vessel records, the first engineer participated in this drill.

1.3.5 Postcasualty Actions

After the fire, during the 8 months the vessel underwent repairs, the engine control system was renewed and the electrical control and distribution panels in the MCR were replaced. All switchgear controls were relocated into the MCR and were designed to be operated by a single crewmember. A new fire detection system was installed in the engine room and throughout the vessel, and all damaged lighting in

the engine room was replaced and additional lighting installed with battery backups. Additionally, the fixed CO_2 system was reconfigured to be a pneumatic, pressurized gas release system with a wintergreen odorizer (for warning crewmembers of release), replacing mechanical pulls. The emergency gear locker was equipped with new turnout gear and other equipment, including SCBAs with visual/thermal imaging and communications capabilities. A new air compressor system for filling SCBA bottles was installed. The operating company reported that training had been provided to refresh the crew on all Standards of Training, Certification, and Watchkeeping for Seafarers requirements and to reinforce best practices. The general maintenance procedures of the chief engineer's standing orders on the *Stuyvesant* were updated to include a requirement that two crewmembers inspect the equipment after completing maintenance and start the equipment locally to observe its performance.

2 Analysis

On November 2, 2024, while the dredging vessel *Stuyvesant* was holding station in the St. Johns River near Jacksonville, a fire broke out in the engine room. Crewmembers had just completed maintenance on the port auxiliary engine which included replacing the fuel and lube oil filters and the lube oil in the sump. Once the work was complete, the first engineer started the engine remotely from the MCR, and less than a minute later, engineering crewmembers saw flames in the engine room. After the fire, investigators found that the crew had not reinstalled the plug on the engine's lube oil filter housing after completing maintenance. Without the plug reinstalled on the lube oil filter housing, pressurized lube oil would have sprayed out from the port auxiliary engine through the internally threaded port at the top of the lube oil filter housing when the engine was started.

Recorded operating lube oil pressure for the port auxiliary engine was about 65 psi. The orientation of the port auxiliary engine in relation to the port main engine would have provided a path for the lube oil, spraying out in the forward direction from the open internally threaded port in the lube oil filter housing onto the port main engine a deck below. The exhaust temperatures of the port main engine, when in operation, were recorded to be between 614°F and 742°F, which would have been sufficient heat to ignite the spraying lube oil. Additionally, technicians noted that about 57 gallons of lube oil were missing from the lube oil sump of the port auxiliary engine after the fire. Therefore, the fire in the engine room started when pressurized lube oil from the port auxiliary engine sprayed onto a hot surface of an operating main diesel engine.

At 1437, about 2.5 minutes after the fire was discovered, the port auxiliary engine received an "unintended stop" command, which stopped the engine and its engine-driven lube oil pump and discontinued the release of spraying lube oil as the primary source of fuel for the fire. The chief engineer activated the emergency stops for the main engines at 1439, which stopped the engines and reduced the heat produced by them. When the main engines stopped, the attached shaft generators would have stopped producing electric power, and all ventilation fans would have shut down, reducing the oxygen entering the engine room. When the shipboard emergency squad reached the engine room about 1457, they did not see flames. After ensuring all personnel were out of the MCR and engine room, the crew then verified all the dampers for the engine room ventilation fans were closed to seal the space before releasing the fixed gas fire extinguishing system, which ensured the CO_2 worked effectively and the fire did not reflash.

After completing the oil change, crewmembers remotely started the port auxiliary engine from the MCR. The engine was equipped with a local start panel,

which was located alongside the engine on the outboard bulkhead. If the engine had been started locally, a crewmember would have been near the engine for the start sequence, which consisted of a start command for the pre-lube pump, which would develop about 6 psi of lube oil pressure before the engine started. The crewmember could have identified a reduced discharge of lube oil through the open internally threaded port at the top of the lube oil filter housing and could have taken action to stop the start sequence before the lube oil pump developed full operating pressure of about 65 psi. Because the engineering crewmembers started the engine remotely from the MCR, rather than locally, they had no indication that lube oil was discharging and subsequently spraying from the port auxiliary engine when it was started. The operating company has since updated its maintenance procedures to mandate that, following maintenance on an engine, crewmembers locally start the engine.

Maintenance conducted by the engine crew prior to the fire is considered routine, and the crewmembers involved had likely completed similar tasks numerous times. The engine manufacturer's instructions were available on the vessel and provided detailed information on how to conduct the tasks. However, investigators found instances where these tasks had not been completed on the day of the casualty in accordance with the manufacturer's instructions for the port auxiliary engine. The lube oil filler cap was left open, and the plug for the lube oil filter housing was not reinstalled (the plug was found on a nearby storage cabinet). Additionally, the manufacturer's instructions recommended crewmembers conduct a walk-around inspection before starting the engine. Based on crewmembers' statements and the items investigators found out of place after the casualty, it is unlikely crewmembers inspected the port auxiliary engine before starting the engine. If they had done so, they likely would have noticed that the plug had not been reinstalled in the lube oil filter housing. Had the engine crewmembers followed the engine manufacturer's instructions when completing their maintenance work, it is likely they would have discovered the missing plug during an inspection and taken steps to reinstall components before starting the engine and prevented the fire. The operating company has since updated its maintenance procedures to mandate that, following maintenance on an engine, two crewmembers inspect the equipment before starting the engine.

The engineering crew initially planned on conducting the routine maintenance on the port auxiliary engine the day before the fire but chose to delay until the next day due to limited available time. On the day of the fire, a maintenance team consisting of the first engineer, oiler, and wiper was assigned to the maintenance job. While completing maintenance, the team's composition was altered when the oiler left the jobsite due to illness. A disruption during the performance of a job that requires sequential tasks can lead to steps in the sequence being overlooked or

missed, especially in teams where individual roles and expectations may not be clearly defined. Additionally, the illness of one of the crewmembers may have affected his individual performance before his departure.

3 Conclusions

3.1 Probable Cause

The National Transportation Safety Board determines that the probable cause of the engine room fire on the dredging vessel *Stuyvesant* was lube oil spraying from an auxiliary diesel engine (generator) and igniting off a nearby running diesel engine, due to engine crewmembers not reinstalling a plug after routine maintenance in accordance with the engine manufacturer's instructions and not thoroughly inspecting the port auxiliary engine before initially starting it.

3.2 Lessons Learned

Starting Machinery Locally After Maintenance

After maintenance has been conducted on engine room machinery, diligent inspection of the machinery is critical to ensure it functions as expected and all components have been reinstalled properly. Starting up engines locally, rather than remotely, gives crewmembers the opportunity to immediately verify that the engine is operating satisfactorily (to manufacturer's specifications) with no visible fuel, lube oil, or water leaks, and has no atypical noises or vibrations that require it to be stopped.

Vessel Particulars

Vessel	*Stuyvesant*
NTSB vessel group	Specialty/Other (Dredging Vessel)
Owner/Operator	Dutra Group Inc. (Commercial)
Flag	United States
Port of registry	Mobile, Alabama
Year built	1982
Official number	648540 (US)
IMO number	7915838
Classification society	American Bureau of Shipping
Length (overall)	392.7 ft (119.7 m)
Breadth (max.)	72 ft (21.95 m)
Draft (casualty)	15.5 ft (4.7 m)
Tonnage	7,110 GRT
Engine power; manufacturer	2 x 6,900 hp (10,291 kW); Wartsila (Stork Werkspoor) LLSB-560-S/6, 9 cyl diesel engines

NTSB investigators worked closely with our counterparts from **Coast Guard Sector Jacksonville** throughout this investigation.