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GCMA REPORT #R-390
DATE: February 14, 2004

LOSS OF THE TUG THOMAS HEBERT OFF NEW JERSEY COAST WITH LOSS OF LIFE FAILS TO BRING NEEDED CHANGES

[Source: Edited from USCG Case #MC93003918]

On March 7, 1993, the New York Marine Inspection Office was notified by USCG Group Sandy Hook that the tug THOMAS HEBERT, owned by S.C. Loveland Co, Inc., had sunk 35 nautical miles southeast of Manasquan Inlet, NJ. The incident took place sometime between 0300 and 0400 hours. The casualty was reported to the Coast Guard at approximately 0915.

Personnel data: There were seven people on board the tug. Two were rescued and five perished. The survivors were transported to Jersey Shore Medical Center in Neptune NJ. The survivors from the tug were the master, Captain ■■■ and one mate, Mr. ■■■■.⁽¹⁾ Crewmembers who perished were: George Washington Coram, Mate (age 74 – making one final trip prior to retiring); Vincent Blanks, Assistant Engineer; Mabuary George Hatch, deckhand; Charles Lander, Engineer/Deckhand; and James Westmoreland, Cook/Deckhand. ^{[⁽¹⁾The names of the Captain and the surviving mate were re}

Vessel data: The tugboat THOMAS HEBERT, whose homeport was Philadelphia, PA, was an **uninspected towing vessel** whose official number was 570117. She was built in 1975 at Orange, Texas, and was 98 gross tons, 67 net tons, 89 feet in length with a beam of 27.2 feet and a depth of 11 feet. She was powered by two diesel engines totaling 2,400 horsepower. The tug had a Sperry automatic pilot at two control stations in the pilothouse and one on top of main deck house. The autopilot would play a prominent role in the accident. The THOMAS HEBERT was towing LOVELAND 3403, a loaded 3,747 gross-ton coal barge, O/N 290771 built in Orange, Texas in 1963. Both vessels were owned and operated by S.C. Loveland of Pennsville, PA.

Because the tug THOMAS HEBERT was a seagoing motor vessel of less than 300 gross tons, she was not subject to USCG construction and inspection regulations of 46 CFR Subchapter I. However, because she was seagoing vessel over 79 feet in length, she was subject to USCG Load Line regulations found in 46 CFR Subchapter E. These regulations required that the USCG conduct a review of the vessel's stability and that the American Bureau of Shipping (ABS)

conduct a review of the vessel's structural integrity. The Load Line Certificate was issued on 28 February 1989 and was valid until February 28, 1994 with annual surveys required. The vessel had an ABS machinery survey conducted April 14, 1992 and ABS hull survey conducted April 25, 1992. The vessel was constructed in accordance with ABS classification standards applicable to anchor handling tugs operating in the North Sea. However, ABS has no classification standards for towing systems and towing equipment.

The Accident: The THOMAS HEBERT picked up the barge LOVELAND 3403 at the Newport News coal piers on March 5, 1993. The barge was loaded with 8,500 tons of coal. The tug and barge were enroute to Portland, Maine, at the time of the accident.

According to an interview with Captain ■■■, he had made the journey from Virginia to Maine several times. The journey normally takes 4 days and was repeated every 8 to 10 days. On this occasion, they expected to arrive in Portland on March 8th.

At approximately 2000, on March 6th, when the tug and barge were approximately 30 miles south of the Barnegat Light Inlet sea buoy, they altered course to 045 degrees true heading for Buzzard's Bay Light. The vessel's speed was approximately 5.6 knots.

The weather was clear with the temperature about 40 degrees and the wind 10 to 15 knots out of the southwest. The seas were calm with approximately 3 to 4 foot swells.

According to the interview of the two survivors, the Captain and Mr. ■■■■ were on watch from 1730 to 2400. Charles Landers had the engineroom watch. Charles Landers was the Captain's brother. The watches were normally scheduled for 6 hours on and 6 hours off.

The Captain stated that he checked all of the navigation lights prior to being relieved and that they were all operating properly. The vessel was on automatic pilot with a course of 045 degrees true.

Mate George Coram, Mabuary Hatch, and Vincent Blanks were the relief watch. George Coram was the mate, Mabuary Hatch was the engineer and Vincent Blanks was the deckhand. These men were on watch at the time of the accident.

The Captain stated that, when he was relieved, the barge was towing easily at the end of 1,200 feet of 2 inch steel wire. The catenary was approximately 50 feet.

The surviving mate stated that, after being relieved, he cleaned the head and mopped the pilothouse. He stated that at about 0100 he went to sleep. Both the Captain and the surviving mate were asleep when the incident occurred. Their cabins were located just below the pilothouse. According to the survivors, the incident took place between 0300 and 0400, on March 7th.

According to the surviving mate, he was awakened when books from the shelf started falling. He noticed a 15-degree starboard list. He yelled, "What's going on?" and ran to the pilothouse.

The Captain was also awakened at this time. The surviving mate and the Captain stepped into the passageway just below the pilothouse. According to the surviving mate, the Captain ordered him to take the vessel out of gear. When he did so, he felt some of the vessel strain ease. However, the

vessel did not level out completely. **The surviving mate found no one in the wheelhouse and did not know where the other mate who was on watch was at the time.** He stated that, while in the pilothouse, he never saw the barge. He was not able to say what the position of the barge was.

According to the surviving mate he then went down for his survival suit. After he grabbed his suit, he was going to go up to the pilothouse to make a "May Day" call. However, as he was going up the stairs, the vessel lost generator power and the lights went out. He felt the stern going down.

At this point, both the surviving mate and the Captain were standing in the companionway in front of the Captain's cabin. This companionway is located below the pilothouse but above the galley and the crew cabins. The surviving mate was about to go up to the pilothouse to make a "May Day" call, and the Captain was about to go to the lower cabins to check on the crew. They were standing directly behind each other and facing opposite directions when the surviving mate heard George Coram, who was supposed to be standing watch, trying to go up the stairs saying, "Get out of the way". However, the Coast Guard investigators noted that this conflicts with the Captain's statement that believed that Coram was in the pilothouse and was coming down the stairs to the companionway. Neither the Captain nor the surviving mate reported that they actually saw Coram. The lights were out at the time.

According to the surviving mate, the lights went out and the back windows in the pilothouse blew out. Within seconds he was in the water. The vessel went down stern first with no "May Day" call ever being made.

According to the Captain's written statement, he went to sleep at approximately 0045. "The next thing I remember I heard (the surviving mate) yell out "What the hell is going on?" Then I heard something fall in the head. I jumped up and realized that the boat had a starboard list. I ran out of the room and I told George (Coram) to slow down the throttles." Apparently, the Captain was not aware that Coram was not at the helm. The Captain stated that he thought the steering had malfunctioned again. This is why he ran out of his cabin and yelled "Slow down".

The hydraulic steering system used two (2) solenoids per steering pump. If one solenoid failed the rudder would go hard the opposite way. The problem could be corrected by switching to the other steering pump, and this could be done at the pilothouse.

[GCMA Comment: A problem using an autopilot was one of the causes of the Exxon Valdez grounding and was involved in a number of other accidents. Refer to GCMA Report #R-326, Autopilots, Watchkeeping, and Route Planning.]

According to the Captain a solenoid would fail approximately twice per year. The THOMAS HEBERT carried 10 spare solenoids on board. Both survivors stated that the solenoid in the hydraulic steering system had failed on the previous voyage. The Captain stated that the generator and the main engine were functioning properly but that the engine sounded as though it was straining. However, when

the engines were put in neutral, the boat seemed to partially straighten up.

The Captain stated that when he stepped into the companionway, he saw two silhouettes in the pilothouse one by the throttle and one by the door. He also reported hearing Vincent Blanks yell. The Captain turned to go to the galley to see what Vincent Blanks wanted when he heard mate George Coram say, "get out of the way."

The Captain stated that before he hit the second step, "All hell broke loose". The lights went out and he felt a sudden gust of wind. The Captain believes that water rushing into the hull had caused the sudden gust of wind. He stated that a wall of water knocked him into the pilothouse and then out of the vessel into the ocean. The tug quickly sank stern first.

The Captain reported during a follow up telephone interview that although he never saw George Coram, he swears that he was in the pilothouse although this contradicts the statements of the surviving mate. Captain bases his assertion that Coram was in the pilothouse on the fact that he saw two silhouettes in the pilothouse. Additionally, when he later heard Mr. Coram say, "Get out of the way", the voice came from behind him. The Captain was standing in the companion way in front of his cabin and was about to go down the stairs to the galley when he heard the voice of Mr. Coram. Neither the Captain nor his surviving mate actually made a positive visual identification of Mr. Coram.

The loss was sudden. Both the survivors estimate that it was approximately one minute from the time they noticed the list to when the tug sank. According to the survivors, they did not hear the bilge alarm go off. The Captain stated that the electronic flood detection system would go off when there was 2 feet of water in the bilges. He does not know why the bilge alarm failed to sound. Neither of the survivors sounded the general alarm nor heard it activated. The general alarm was located in the pilothouse.

[GCMA Comment: As reported in GCMA Report #R-276, bilge alarms are not required equipment on uninspected towing vessels. General Alarms have only been required since 2003.]

The inflatable liferaft floated free, inflated automatically and both survivors were able to board it. The mate reported that once in the raft, it seemed that the barge had some headway. He saw the barge about 300 feet away. First he saw the red and green lights and then only the stern light.

The mate stated that he saw no large vessel that could have run over his towline. The towline was 1,200 feet long with a catenary of approximately 50 feet. He did see three (3) fishing vessels northwest of them, however.

The Rescue: The Captain stated that when he reached the surface, he saw the mate 50 to 100 feet away. They both swam towards the life raft. Inside the raft, the mate put on his survival suit that he had gotten from the tug. When the Captain looked at his watch, it was 0448 although he does not know the exact time the tug sank. He did not look at his watch immediately upon entering the raft. He may have been in the raft for over an hour by the time he looked at his watch.

Both survivors stated that the raft was being dragged by

the tug. The raft remained tethered to the tug and was pulled approximately 30 yards toward the sinking tug until the 100-foot sea painter snapped. Apparently the weak link did not break as it should have done. There was a knife in the raft next to the sea painter attachment but neither man was aware of it at the time.

The life raft was an Elliot 12-man raft. Although EPIRBs are not required on this type of raft, two were placed in the raft. The survivors stated that they could not find the EPIRBs packed in the raft. They were found unpacked in the raft after the rescue. The life raft was inspected on February 19, 1993 and found to be in satisfactory condition.

[GCMA Comment: As reported in GCMA Report #R-276, existing regulations only require life jackets and ring buoys be carried as lifesaving equipment on uninspected towing vessels. Regulations still do not require that inflatable life rafts or other “out-of-water” flotation gear be carried. Without the inflatable life raft, both survivors would have perished.]

Although EPIRBs are not required on board uninspected tugs, the survivors stated that there was an EPIRB on board. Because all the EPIRBs both on board the THOMAS HEBERT and in the raft, needed to be manually activated and the survivors were not able to locate any of them, no EPIRBs were activated. Although EPIRBs would not have changed the outcome of this casualty, the survivors would have been rescued much more quickly if the EPIRBs had been activated.

[GCMA Comment: This illustrates an important difference between self-activating and manually activated EPIRBs. The difference of self-activation justifies the extra cost.]

The Captain and his mate attempted to paddle the twelve-man life raft toward the barge. They were unsuccessful due to a combination of their own physical fatigue and the wind blowing the raft away from the barge. The mate shot off the raft's hand flares in order to attract attention. However, sparks from the hand flares deflated the raft canopy. They spotted a scallop boat but could not find the parachute flares to signal them. They were afraid to light any more hand flares for fear that the raft would be further damaged. The life raft continued to drift.

The Captain, who had had no time to dress, was kept warm by the deflated canopy of the raft. Because the mate could not put on the survival suit until he was in the raft, a considerable amount of water was inside the survival suit. However, the mate was instrumental in keeping the Captain alive. He ensured that the Captain was kept warm by wrapping scraps of loose material and cardboard around him. He also ensured that water was constantly bailed out of the raft. Because the Captain was exhausted, the mate took charge of their efforts to spot passing vessels for assistance.

At approximately 0930 the mate spotted a ship and started to wave the oar back and forth. However, the ship passed without noticing the two stranded crewmembers. At approximately 1100, the fishing vessel MISS MANDY reported that they spotted a life raft with two people on board

in position 39°48.8'N, 73°13.0'W. The crew helped the two survivors on board and called the Coast Guard. The survivors had drifted five to seven miles from the location of the barge before being rescued.

The F/V MISS MANDY was cod fishing when the rescue was made. A crewman said the pair told them the last thing they remembered was the tug listing heavily, then seeing its windows blow out. According to the fisherman the survivors claimed that the tug went down in about two minutes. The crew of the MISS MANDY went back to the location of the barge and searched for a good three hours looking for more survivors.

A Coast Guard helicopter evacuated the two survivors to Jersey Shore Medical Center in Neptune, New Jersey. They were treated for hypothermia and released.

The Coast Guard sent two helicopters from Air Station Brooklyn and two jets from Air Station Cape Cod to search for the missing men. A broadcast was put out every thirty minutes requesting that all vessels keep a lookout for survivors. Despite the extensive search, no survivors were found. The search for the five men was suspended at approximately 2045 on March 7th. The rescue party concluded that the missing crew could not have survived such a prolonged period of exposure to 38°F waters.

The salvage: The USCGC MONOMOY was on scene at approximately 1900 and began searching the area. The crew of the cutter boarded the barge. The barge had no unusual dents or scrapes that would indicate that the barge struck the tug. There was no water in any of the bilges of the wing tanks or in the forward or aft rakes. The crew of the cutter noticed that the bridle went almost straight down just forward of the barge with a moderate to heavy strain and the barge was listing slightly to port. They concluded that this was probably a result of a shift in its cargo. The boarding team entered the barge's generator room and found the navigation lights were energized and burning brightly. Other than the towline, they noted nothing unusual. The cutter remained on scene through out the night.

The following morning, the tug AMY MORAN and the barge ITCO XII were on scene to pick up the barge LOVELAND 3403 and take it on to Portland, Maine. The towing wire was still going straight down, and despite the blowing wind, the barge was not moving. With 1,200 feet of wire out, it was as though the, barge were anchored. Dive reports indicated that the line was not tangled in the tug. This raised suspicions that the wire may have been caught on something on the seabed. The weight of the line itself may have anchored the barge.

The same day, March 8th, the M/V DIVERSION II arrived to conduct a dive survey. They found the THOMAS HEBERT heeled over on her starboard side approximately 110 degrees. Apparently, the vessel landed upside down. The superstructure was in the sand. The mast was bent 45 degrees toward the stern. There was no damage to the hull noted. A small amount of chain and fishing line was found wrapped around the port propeller. This chain appeared to have been there for some time. The divers reported that the port rudder was turned 15 degrees towards port but could not see the starboard rudder because it was buried in the sand. Divers entered the pilothouse. Broken glass and splintered wood,

along with papers and charts were scattered about. The control panel showed the port engine control was in the neutral position, and the starboard control was in reverse. The throttles were in the mid position. One of the two pilot's chairs was knocked loose from its base. A long-range sonar survey, conducted by the dive crew, did not reveal any targets that could have snagged the tow wire. Additionally, none of the divers found anything in the area that could have snagged the wire's catenary.

On March 12th the F/V DEEP ADVENTURES of Brielle, NJ, arrived on scene to conduct a dive survey. The primary focus of the dive was to find the bodies of the missing crewmembers. The engineroom door forward of the winch was found in the open position. It was kept permanently open according to statements from the survivors. The engineroom was in complete chaos with cables, tools, lines and general debris littering the area. A full sized toolbox was wedged between the galley door and the towing winch motor. This made access to the galley impossible.

[GCMA Comment: There are many examples of watertight doors left open providing direct access to the sea and downflooding with little or no warning.]

The divers then tried to gain access through the pilothouse. Except for the first window on the port side, all the bridge windows were broken. The port bridge door was dogged shut. A Furuno radar set was hanging out of the bridge window held by a cable. A stopped clock in the pilothouse indicated 5:24. Once the divers accessed the pilothouse they proceeded aft into the passageway. The locker in the passageway below the pilothouse where the survival suits and the gyrocompass were kept was open. The divers closed this door to gain access to the passageway. No survival suits were found in this area. After removing debris, a diver was able to access the Captain's cabin. The head was not accessible because of debris.

On March 21st, the M/V VENTURE 3 returned to the wreck site to resume recovery efforts. A storm with gale force winds precluded any diving efforts since March 12th. The plan was for two divers to gain access to the galley via the stairwell behind the pilothouse. At the time, this was the only way into the galley. Two other divers removed the large Craftsman toolbox obstructing the galley door with a come-along. Their next dive would focus on inspecting the tow cable.

The wreck sustains further damage. On a subsequent dive, the diver discovered that the pilothouse had sustained a direct hit by what was believed to be a dragger. The bridge windows were set in and the control panel was smashed. The port pilothouse door was torn off from the hinges and the door rim knocked inward. The Captain's cabin was ripped open approximately three feet and exposed to the open sea. The front part of the pilothouse roof was pushed downward. The searchlights and radar scanners had been torn off. The mast atop the bridge had been bent back over the port side. Silt and fine sand were found along the entire length and inside of the wreck. Access through the pilothouse was now impossible. However, the toolbox blocking the engineroom entrance had fallen.

The galley was now accessible through the engineroom. The body of James Westmoreland was located in the head on the galley deck. His sweatpants were still around his knees. This confirms the statements of the survivors that the THOMAS HEBERT went down very quickly. His body was brought to the surface.

The body of Charles Landers was extracted from the crew's cabin. He was wearing a survival suit. According to the relief Captain on the THOMAS HEBERT, Mr. Landers practiced getting in and out of his survival suit and kept it by the side of his bunk at all times. The cabin where Charles Landers was found was not his cabin. It belonged to Mabuary Hatch. Apparently, Charles Landers was trying to tell Hatch that the vessel was in danger of sinking.

Vincent Blanks was discovered face down in the engineroom in front of the hatch leading to the galley. He was dressed in jeans and work boots. From the waist up his body was covered with debris. It appeared that the toolbox had fallen on him. The divers then focused on removing one body at a time because excessive movement within the narrow confines of the debris-riddled wreck would have further clouded the waters and reduced visibility.

The search for bodies continued and included the main engineroom, galley, forward port bunkroom, and starboard bunkroom, and the head on the galley deck. All divers were using standard air, with exposure times between one hour and one and one half hours.

On March 23rd, the divers returned on the M/V DEEP ADVENTURERS 3 to resume recovery efforts. Donjon's 85-foot tug, 200-foot barge, and 200-ton crane with a decompression chamber, and hardhat divers were on site with a four-point mooring. At this time the M/V DEEP ADVENTURERS 3 was informed that a Donjon diver had been lost while diving on the wreck site. The divers from the M/V DEEP ADVENTURERS 3 proceeded with the body recovery efforts and found the body of Mabuary Hatch in the forward starboard bunkroom where Charles Landers had been found. They searched the port and starboard bunkrooms but the results were inconclusive as a result of low visibility and debris. The bridge, deck mate's room and passageway were also searched. However, the head could only be partially seen.

An attempt was made to inspect the tow cable. Visibility, however, was less than 6 feet. The diver propulsion vehicle was abandoned and the decision was made to swim out the cable. The first fifty yards of the cable from the tug was examined with no abnormal findings.

On March 31st, the dive team departed from Belmar, NJ on the M/V VENTURE 3. The dive plan was to check the passage from the stairwell behind the bridge to verify whether the galley was accessible as an alternate exit. Divers would then try to access the two cabins on the bridge deck. Entrance to the Captain's cabin was aborted when the diver ran out of room shortly past the doorway. The dragger had damaged the room making the passageway smaller. Two other divers documented the area of the search on film. They made video recordings of every room accessed. A diver on a propulsion vehicle tried to follow the tow cable from the barge end of the cable to the tug. A buoy had marked the barge-end of the cable before being cut free from the barge. The diver

followed the cable out for approximately 50 feet. At this point, however, the cable disappeared into the sand. So as not to lose his bearings, the diver attached a 250-foot line reel and followed the reel out to the end. It was estimated that he covered 300 feet of cable. From what he observed, the cable did not appear to be kinked, worn, bent, or damaged in any way. It was laying on the bottom in a serpentine fashion.

On April 30th the dive team, from the M/V WHITE STAR IV, recovered the body of the missing mate George Coram in the starboard bunkroom. His body was turned over to the Ocean County Coroner's office.

[GCMA Comment: The missing mate was supposed to be on watch in the pilothouse not in the starboard bunkroom. The safety and ultimately the lives of the crew were in his hands when he took charge of the watch. There is no excuse for his leaving his station until he was properly relieved. The General Alarm was available if he encountered an emergency.]

The THOMAS HEBERT sank in sufficiently deep waters to render salvage impractical. The vessel's value was estimated at \$800,000.

The Towing Wire. According to the Captain, they were towing the barge at the end of a 1,200-foot long tow wire. The tow wire weighed 7.65 pounds per foot. The Captain estimates that there were approximately three wraps of wire still on the towing drum. A towing bridle⁽¹⁾ was attached to prevent the tow wire from riding to port or starboard. The maximum it would ride to either side was one foot. The towing controls were located on the stern of the tug just above the towing winch. ^[⁽¹⁾ i.e., a gob rope, "guide chains" or equivalent used as a stopper to keep the tow cable amidships]

There was a brake release that could have released the tow from the THOMAS HEBERT. However, the mate would have had to go from then pilothouse to the first deck to operate the mechanical override. The towing wire was retrieved from the wreck on May 8th. It was rolled up from the bottom on a towing winch. When all the cable that could be reeled by the towing winch was recovered, the line was cut, at the surface. The remaining line would be the distance from the surface to the tug and what was on the winch drum, approximately 150 feet. The Hull and Cargo Surveyors examined the towing wire. The cable measured approximately 1,038 feet. The cable was relatively new and had been installed less than a month earlier on February 15th. However, inspection of the towing line revealed significant damage to the cable. From the socket end that attaches to the tow, to approximately 40 feet, the tow wire shows light wear. At 90 feet, the tow wire shows signs of being opened up. At 140 feet, the tow wire begins to gradually show more pronounced wear. At 190 feet, the strands on the wire are separated 1/4 to 1/2 inches apart. From 240 to 340 feet, the cable is opened up and kinked to such an extent that the wire will not lay flat on the deck. The area of damage to the tow wire suggests that the tow tripped the THOMAS HEBERT. The area of damage is exactly where the tow wire would experience the greatest strain if such an event took place. The Hull and Cargo Surveyors noted gray paint residue on the outer layer of the cable. This paint residue was found on the

most severely damaged portion of the towing wire. The LOVELAND 3403 is painted gray.

Submarine Theory: Rumors of possible submarine involvement surfaced immediately after accounts of the incident hit the media. According to the chief financial officer of the S.C. Loveland Co, "past experience, discussions with the tow surviving crew members and the speed with which the THOMAS HEBERT went down all point to a submarine."

[GCMA Comment: The owners may have been familiar with the 1989 accident where the U.S. Navy nuclear attack submarine USS HOUSTON snagged the towline and sank the tug BARCONA in the San Pedro Channel on the west coast.]

Suspicions were strengthened when the USS NEWPORT NEWS reportedly came into port the week of the casualty with damage to the conning tower and electronics. Throughout this investigation, the Navy denied any submarine or vessel activity in the area of the casualty.

The investigators contacted the Department of the Navy to request information concerning reports of potential submarine involvement and in particular the damage that the submarine USS NEWPORT NEWS allegedly sustained while on a mission.

The Navy reported that the submarine did enter Newport News Shipbuilding and Drydock after returning to homeport. However, this was for normally scheduled maintenance. The Navy reported that there was no damage to the sail and electronics. Furthermore, the Navy reported that the submarine was operating south of the Chesapeake Bay at the time of the incident. A spokesman said that no submarines were operating in that area at that time and that fleet submarines would not normally travel beneath the ocean's surface in such shallow water. Although the region where the THOMAS HEBERT sank is used for training by submarines, no U.S. or foreign submarines were in the vicinity at the time of the incident.

The probability of submarine involvement was diminished by the location of the damage to the towing wire. If a submarine were involved, the most severely damaged portion of the towing wire would most likely have been along the center of the towing wire rather than near the barge end of the wire.

Conclusions: In investigating the realm of possibilities that could have caused this tragic accident the steering solenoid failure, causing the vessel THOMAS HEBERT to circumvent its tow, the barge LOVELAND 3403, is the most probable. There are several facts that indicate that this is what most likely happened.

The suddenness of the 15-degree starboard list suggests that its towing hawser tending sharply to starboard tripped the tug. The fact that the vessel continued to heel despite the fact that the engines were in neutral suggests that the towing hawser continued to exert a continuous overturning force on the vessel's starboard side.

The THOMAS HEBERT had a history of steering failures caused by solenoid problems in the steering system as confirmed by the survivors' statements. It is very possible that the vessel had a steering failure on this occasion. This is

what the Captain thought when he first awoke at the time of the incident. The divers found that the rudder was only 15 degrees to port and not hard over. Nevertheless, this does not rule out problems with the steering system solenoid. The rudders were exposed to tremendous forces during the events surrounding the sinking of the vessel and most likely changed position several times before the vessel came to rest on the bottom.

The damage to the towing wire seems to indicate that, at some point, the towing wire wrapped itself around the barge, which is 340 feet long and 62.6 feet wide. The most severely damaged portion of the towing wire was at approximately 300 feet. With the addition of the 36 foot surge line, this would place the most severely damaged portion of the wire at the aft corner of the barge, if the tug went around its tow, it would have been pulled back quickly by the loaded barge heading in the opposite direction.

It is possible some event other than steering failure may have caused a misalignment of the tow. These include an improper maneuver, inattention to the tow, or unanticipated action of the seas. The stern engineroom door was fastened open so that if the stern were submerged at anytime, vast amounts of water would have entered through this large opening. With this main deck exterior door wide open, the tug would have lost reserve buoyancy and stability and would have flooded very rapidly. Anyone who was not near an exit would have had no chance to escape.

The case reopened: The Coast Guard reopened the case in 1995 upon consideration of objections to the investigation raised by attorneys for the owners and operators of the THOMAS HEBERT to allow for further investigation and the designation of parties in interest. Although the Coast Guard reopened the investigation, they did not vacate or retract the investigators' report.

The law firm representing the owner/operator of the vessels involved presented two significant points of argument. The first was where expert witnesses provided by attorneys stated that the rudders could not automatically "go hard over" when there is a steering system solenoid failure. The steering system in this case is designed with two solenoids per steering pump, one for controlling left rudder movements and one for right rudder movements. They indicated that when a given solenoid fails, the steering system could no longer acknowledge rudder commands to the side the solenoid controls. It is then hydraulically locked from moving toward the given side of failure. For example, if the port solenoid fails, the steering system can no longer move the rudder left, regardless of where the rudder is when it fails (i.e., if the rudder was 5 degrees right when the solenoid failed, the rudder could not even be brought back to amidships. However, any command for additional right rudder could still be answered. The description of events provided by the expert witnesses conflicts with what the survivors and members of the "relief crew" of the THOMAS HEBERT stated in their interviews both in the initial investigation and during this post casualty analysis. They indicated that when a solenoid fails, the rudders "go hard over". Regardless of this conflict in testimony, it is clear that a solenoid failure severely impairs the steering system and if left unattended or not detected immediately, may have a disastrous result.

Following the example, while the rudder may not "go hard over" automatically, it could be worked hard over to the still functioning side by an unaware and/or panicked operator trying to get rudder response by moving the helm from side to side. With each movement to the still-functioning side, the rudder would be moved just that much more in that direction with no way to bring it back. If the vessel was operating on autopilot, and the operator was unaware of solenoid failure, an equally disastrous result could be achieved as the system tried to correct course with response only to one side.

As stated in depositions, the survivors and members of the relief crew stated that these solenoid failures are not uncommon on this system, occurring approximately twice a year, and when detected, can be easily corrected by switching steering pumps in the pilothouse.

[GCMA Comment: You have to be physically present in the pilothouse to switch steering pumps. Neither the mate on duty nor his deckhand were there as determined by the places where their bodies were found.]

The second significant point raised by the attorney's representing the owner/operator was that the tug could not have been pulled over on its starboard side immediately prior to sinking (as suggested in the Coast Guard report). During a post casualty dive survey the "guide chains" for the towing hawser on the "Texas bar" of the THOMAS HEBERT were found still intact and attached to the towing hawser. All parties are in agreement that the forces needed to capsize the tug certainly would have easily parted the guide chains. This indicates that any major forces exerted on the hawser would most likely have come from more directly astern of the vessel rather than from sharply off to the starboard side. However, prior to sinking, both survivors testified that the vessel listed to starboard.

Amended Conclusions: The only difference in the conclusions from the previous investigation and from this post casualty analysis is that the tug was more likely dragged backwards rather than being overturned on its starboard side after it circled the barge as the previous report suggests. This in turn most likely forced water into the open engineroom door, flooding and sinking the tug.

RECOMMENDATIONS

1. **Abandon Ship Drills.** The survivors demonstrated a general lack of training in the proper use of pyrotechnics and life rafts (i.e, equipment installed on the vessel). This coupled with abandon ship drills (including the use of the general alarm) contributed to this casualty. Abandon ship drills and life raft familiarization should be required any time life rafts are carried aboard.

Commandant's Action: We concur with the intent of this recommendation. **However the Coast Guard does not have the legislative authority to require training when Coast Guard –inspected life rafts are deployed aboard uninspected vessels.**

[GCMA Position: The Coast Guard should have sought the authority from Congress to carry out this recommendation. Eleven years have passed and the Coast Guard failed to take effective action. GCMA approached Congress to protect our mariners while the Coast Guard continues to diddle. Refer to GCMA Report #R-350, Items 1 & 15 and GCMA Report #R-276, Items 10 & 36.]

The THOMAS HEBERT was an uninspected towing vessel (UTV) and, as such, was regulated under the authority of Title 46 U.S. Code Chapter 41, Uninspected Vessels Generally. This section of the U.S. Code addresses lifesaving, firefighting and other safety equipment, but does not authorize vessel inspections or required training....

If the Coast Guard obtains additional authority, the recommended drills and familiarization will be considered for implementation. *W.D.Rabe*, By Direction.

2. Emergency Tow Release. An emergency tow release mechanism activated from the bridge may have prevented this incident. The towing industry should be encouraged to develop and equip their fleets with such a device.

Commandant's Action: We partially concur. The recommendation to equip each towing vessel with an emergency tow release mechanism activated from the bridge will be forwarded to the joint Coast Guard/TSAC working group which will develop UTV safety recommendations.

Additional equipment, however, is not an adequate substitute for a trained, alert watch section. A remotely operated emergency tow release or a weak link in the towline might lead to inadvertent loss of tow in normal operations.

We note that there is no direct evidence that a steering failure occurred that would have caused this casualty. If one had occurred, the proper response for the person on watch would have been to switch to the other steering pump.

[GCMA Comment: The USCG report itself states: "The steering solenoid failed causing the rudder to turn hard to port." It appears that the USCG on-scene investigators believed this was a major cause of the accident.]

There is a dispute as to the exact location of the mate on watch at the time of the casualty, but if he was on the bridge, he took none of the expected steps to avert the accident and did not sound an alarm for the rest of the crew. We also agree that it is problematic that three people on watch did not detect the onset of the events that led to this casualty.

[GCMA Comment: Any "dispute" as to where the watchstanders' were before the accident was settled by where the divers found their bodies. This seems to provide conclusive evidence of dereliction of duty by all on watch.]