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Capsizing Of The M/V STELLEMARE
Albany, NY 09 Dec 04

Incident Summary

Motor Vessel STELLEMARE, 1129 Gross Tons (GT ITC) is a Dry Cargo/Heavy Load Carrier built in 1982. The Vessel is flagged out of the Netherlands Antilles with Bureau Veritas (BV) as the Classification Society. Jumbo Navigation N.V. is the Owner and Jumbo Shipping serves as the Operator of the vessel. The vessel length is 88.20 meters and width with the stabilizer for heavy lift operations in place, is 27.02 meters. Dimension of stabilizer are 10.84x3.29x2.00 meters, it holds 1357 m³ total ballast. The derrick is 34.8 meter above the keel and weighs 180 Ts, with a combined weight of 360 Ts.

At about 1503 (local time) on December 9, 2003 the M/V STELLEMARE capsized while conducting heavy lift operations at the Federal Marine Terminal in Albany, NY. The vessel had completed loading a 234-MT generator that morning and was in the process of loading a 308-MT stator when the vessel lost stability and capsized to its port-side. Local emergency crews responded on-scene and immediately began to search for crewmembers that had fallen into the water. All but three crewmembers were rescued and sent to a local hospital for evaluation and treatment. Local emergency crews continued to search over the next week for the missing crewmembers.

An Incident Command Post was established at the New York Department of Environmental Conservation (NYSDEC) office located at the Port of Albany for the purposes of overseeing the search and rescue, salvage and oil spill response efforts. Local emergency crews and the USCG were conducting search and rescue operations. SMIT Salvage Company had been hired to conduct all salvage operations. Clean Harbor's Environmental Services, Miller's Environmental, and Gallagher Marine Group were hired by the vessel operator to manage the clean up operations for the #2 diesel oil that was spilling from the capsized vessel.

That evening ACTNY contacted the National Pollution Funds Center (NPFC) to open the Oil Pollution Act of 1990 (OPA 90) Oil Spill Liability Trust Fund and then proceeded to dispatch additional resources, including members of the Coast Guard Atlantic Strike Team, to assist with the management of the incident. The vessel contractors then placed boom around the vessel to prevent any more oil from heading down river and endangering sensitive areas. Once the vessel was boomed off, the contractors began to boom off sensitive areas in accordance with the Area Contingency Plan.

The next morning, vessel representatives met with the Coast Guard, State and City Officials to discuss future plans and establish an operational period as part of the Incident Command System. City divers and a SMIT diving team continued to search for the missing crewmembers and conduct safety surveys of the vessel. Ultimately, and several days later, divers discovered the three missing crewmembers in the vessel's hold. After these men had been removed from the vessel and pronounced dead by the local medical examiner, they were returned to the custody of the Russian government.

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Conduct of Investigation

Upon notification of the incident the Vessel Traffic Service (VTS) at Activities New York (ACTNY) sent out a safety broadcast and ceased all vessel traffic on the Hudson River in the vicinity of Albany, NY. Concurrently, the Captain of the Port dispatched a marine investigation and pollution response team by car. Additionally, Coast Guard Air station Atlantic City dispatched an H-65 to ACTNY picking up additional CG representatives and flying them directly to Albany. On-scene the local police, at the request of the Coast Guard, began to conduct alcohol testing on the available crewmembers.

The next day the Coast Guard in cooperation with the Albany Police, met with the lawyers representing the vessel owner at a local hotel to conduct interviews with the crew of the vessel (an individual within the community volunteered her time serving as an interpreter during the preliminary interviews). The interviews continued for the next few days and included interviews of shore-side witnesses from Federal Marine Terminal.

A few days into the investigation the First Coast Guard District (D1) sent Coast Guard Investigative Service (CGIS) Special Agents from the New York Office to assist in determining if any criminal conduct may have led to the casualty. CGIS reported back to D1 that they had found no indications of criminal negligence on the part of the crew or the company that contributed to the casualty. The on-scene investigation was concluded and the IO team returned to ACTNY once the vessel was righted and Coast Guard Investigating Officers (IO's) were able to collect evidence from the vessel.

Throughout the investigation Coast Guard Headquarters provided the Marine Investigator with a technical expert, Mr. [REDACTED] a civilian from the Commandant's Office of Design & Engineering Standards as well as a CG Licensed Master with heavy lift vessel operations experience. His previous experience with heavy lift ships proved invaluable as he worked with the investigative team, reviewed evidence and developed various loading scenarios using Jumbo Shipping's Loading program as provided by company.

Timeline of Events

This timeline includes details leading up to the capsizing of the M/V STELLEMARE. All time entries are estimates based on interviews with the crew as well as photographs and interviews provided by employees from Federal Marine Terminal.

Prior to December 9, 2003 the [REDACTED] had only conducted 3 heavy lift operations. Neither of the lifts entailed as much weight as the lifts in Albany nor were they accomplished in fresh water.

During the lifts all communication between the [REDACTED] and his crew were conducted via hand held radios. During such communications, the crew spoke Russian, their native language. The

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█████ Supervisor however, did not have a hand held radio during the lift and he spoke Dutch, his native language. The █████ Supervisor was only able to converse with the █████ in English.

December the 8, 2003 – M/V STELLEMARE arrived in the Port of Albany.

Jumbo's █████ Supervisor arrived as well as six on-coming crewmembers. The █████ of the vessel met with the █████ Supervisor to go over the loading plan and make necessary modifications.

December 9, 2003 (All times estimated)

The █████ Mate failed to conduct soundings of the water ballast tanks, therefore the information was not available to the █████ for input into the loading plan.

The vessel was moored starboard side to the pier at Federal Marine Terminal in Albany, NY.

0700 – Began 1st lift (234 metric ton generator). The lift took approximately 3 hours to complete.

1300 – Began 2nd lift (304 metric ton stator). Each derrick had been positioned over the stator to begin taking the load/lifting the stator. The █████ directed the █████ Mate and █████ Engineer to transfer ballast from the #2 Starboard Lower Wingtank to the #2 Port Lower Wingtank until the tank was pressed up. The █████ Engineer went down to the Engine Room to open the valve for the ballast pump, allowing the █████ Mate to conduct the transfer from controls on the bridge.

1330 – The █████ directed the █████ Mate & █████ Engineer to fill and press up the #2 Port Upper Wingtank using the vessel's seachest.

1345 – The █████ directed the █████ Engineer to fill the #3 Port Aft Wingtank using the vessel's seachest.

1400 – The █████ gave directions to the █████ Engineer to discharge the #1 Starboard Forward Wingtank using the vessel's seachest.

1420 – The full weight of the stator was on the vessel's derricks.

1421 – The █████ Mate reported to the █████ that the vessel had a 3° starboard list.

1422 – The █████ Supervisor walked down the pier towards the aft of the vessel to look at the stabilizer pontoon, which had been installed on the port side of the vessel. He told the █████ that everything was okay with loading operations.

1435 – The █████ Mate reported to the █████ that vessel had a 1° starboard list.

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1435 – The [REDACTED] directed the [REDACTED] Engineer to fill the #1 Starboard Forward Wingtank through the seachest.

1450 – The [REDACTED] directed the crane operators to move the derricks inboard. The [REDACTED] would direct each crane operator when to start and when to stop each movement. The crane operators would follow up each stop by engaging the derrick's brakes. There are brakes on each of the derrick winches. Each derrick had three winches, the Cargo Runner Winch and the Port and Starboard Topping Winches.

1454 – The [REDACTED] Mate reported to the [REDACTED] that the vessel had a 0° list.

1455 – The [REDACTED] directed the [REDACTED] Mate and the [REDACTED] Engineer to discharge the #2 Port Upper Wingtank through the seachest.

1456 – The [REDACTED] directed the crane operators to move the derricks inboard. The crane operators followed up each movement by engaging the derrick's brakes once told to stop. There are brakes on each of the derrick winches. Each derrick had three winches, the Cargo Runner Winch and the Port and Starboard Topping Winches.

1459 – The [REDACTED] asked the [REDACTED] Engineer if it was possible to discharge ballast faster (two tanks at the same time). The [REDACTED] Engineer replied that it could be done. The [REDACTED] then directed him to also discharge the #3 Port Aft Wingtank. The [REDACTED] Engineer had made it down into the Engine Room, but had not opened the valve when the vessel capsized.

1459 – The [REDACTED] directed the crane operators to move the derricks inboard.

1459 – The [REDACTED] Mate reported to the [REDACTED] that the vessel had a 1° port list.

1500 - The [REDACTED] directed the crane operators to stop moving the derricks inboard and to engage the brakes.

1501 – The [REDACTED] crane operator stated that he felt the vessel was losing stability so he released the brake in an attempt to move the forward derrick starboard. The crane operator was unable to complete the movement prior to the vessel capsizing.

1501 – A Federal Marine Terminal employee stated that he observed the stator to be about centerline over the vessel. Another employee stated that he observed the forward derrick to be slightly ahead of the aft derrick.

1502 – The vessel's heeling moment exceeded the righting moment and the vessel lost stability.

1502 – The vessel capsized to port.

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Analysis

During the course of the investigation, the investigation team determined the following factors directly contributed to the capsizing of the M/V STELLAMARE and the death of three crewmembers:

- Jumbo Shipping had in place procedures for conducting heavy lift operations; the [REDACTED] failed to comply with company procedures and, therefore, missed key steps in preparing for the lifts.
- The M/V STELLEMARE did not have the ballast volume indicator gauge working properly at the time of the incident, which did not allow for the [REDACTED] Mate to provide the [REDACTED] with water levels within the vessel's ballast tanks.
- The [REDACTED] Mate, as required by company procedures, failed to conduct tank soundings upon arrival to the Port of Albany and prior to each heavy lift operation. Therefore, the information was not available to the [REDACTED] when updating the loading plan or when beginning each lift.
- The [REDACTED] and [REDACTED] Supervisor failed to account for the use of fresh water during the second lift when modifying the loading plan, which changed the weight of the water on board and the stability calculations for the loading operation.
- The [REDACTED] and [REDACTED] Supervisor failed to adjust the amount of consumables when they modified the loading plan, impacting the stability calculations for the loading operation.
- The [REDACTED] was inexperienced having conducted only three heavy lifts prior to arriving in Albany. None of those lifts were as heavy as those planned for Albany, nor were they conducted in fresh water.
- Based on the inexperience of the [REDACTED], the [REDACTED] Supervisor failed to provide adequate supervision and maintain communications with the Master throughout lift as required by company procedures.
- Along with not having any portable means to communicate with the [REDACTED], the [REDACTED] Supervisor spoke Dutch, his native language, and English. He was unable to speak or understand Russian, which was not only the crew's native language but also the language used during both heavy lifts at Albany. The working language throughout the operation was English.
- The [REDACTED] had both the off-going and on-coming crew on board the vessel. The off going crew was training the new crewmembers on heavy lift operations during the lifts. This was not in accordance with the company's procedure that states there was to be minimal crew on board during lifting operations.
- During the second heavy lift the [REDACTED] had several crewmembers working in the cargo hold securing the generator and preparing for the stator to be loaded. This was not in accordance with company procedures, which state, for safety reasons that personnel were not to be in the cargo hold during lifts.
- The [REDACTED] failed to follow the modified loading plan that he and the [REDACTED] Supervisor had developed the day prior to the incident which led to him not having enough ballast for the position of the stator as it approached the centerline of the vessel.

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- The [REDACTED] showed a lack of patience. He failed to allow enough time for the water ballast transfer prior to shifting the derricks, and the stator, towards the centerline of the vessel.
- During the second heavy lift the vessel's transverse heeling arm became excessive and MG' became negative causing the vessel to lose stability and roll to port capsizing.

Conclusion

There were several defense factors in place, but none were actively used to prevent the casualty from occurring. One of the key defense factors in place to aid crewmembers was the company's Safety Management System. On board the M/V STELLEMARE was a copy of Jumbo Shipping's Management System binder, and within that binder were procedures to be followed prior to conducting a heavy lift as well as during the lift itself. These procedures provided the [REDACTED] and his crew, including the [REDACTED] Supervisor, with specific checklists for conducting a heavy lift operation. By not following the Company's procedures, the [REDACTED] missed key information and steps when preparing for and conducting the heavy lifts, and these oversights led directly to the capsizing of the vessel and the death of 3 crewmembers.

Another key defense factor was the involvement of the [REDACTED] Supervisor in heavy lift operations. Jumbo Shipping's policy is to provide a [REDACTED] Supervisor, an experienced person, to assist the [REDACTED] with the lift. The [REDACTED] Supervisor for this lift stated that he felt the [REDACTED] had proven himself during his previous lifts and did not need as much guidance. Even though the [REDACTED] had completed the required training by Jumbo Shipping and conducted prior lifts elsewhere, he lacked adequate experience in conducting actual heavy lifts. Prior to this lift, the [REDACTED] had conducted only three lifts, all of which were conducted in salt water with much less weight on the derricks. This was his first heavy lift with the vessel lying in fresh water. The [REDACTED] Supervisor failed to provide adequate guidance to the [REDACTED] leaving him only with his limited experience to draw upon.

Recommendation

Jumbo Shipping is one of the premier heavy lift companies in the World and during the course of this investigation it was apparent that Jumbo Shipping did have a Safety Management System (SMS) in place. However, it became apparent that the crew of the vessel was not only unfamiliar with the SMS; they failed to follow the procedures outlined in the SMS. Therefore, it is the recommendation of the investigation team that the Flag State, Netherlands Antilles, review Jumbo Shipping's Safety Management System and the implementation of the SMS.