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National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: July 8, 1986
In reply refer to: M-86-50

Mr. Ed McGhee
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Drilling Contractors
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About 2330, on May 20, 1985, the posted drilling barge TONKAWA capsized and sank while under tow in Bayou Chene, approximately 6 1/4 miles southeast of Morgan City, Louisiana. The drilling barge had been underway for about 11 hours prior to the capsizing. There were 22 persons aboard the TONKAWA at the time of capsizing; 11 persons survived the casualty and 11 persons lost their lives. The drilling barge capsized in approximately 26 feet of water and came to rest on its starboard side, about 135° from its normal upright position. 1/

The TONKAWA, operated by the Temple Drilling Company (Temple) of Houston, Texas, had completed drilling an 11,290-foot well for the Shell Oil Company and was "rigging down" or preparing to get underway. The rig was typical of the drilling barges used in shallow water operations, ballasted to lay firmly on the bottom of the bayou. By 1200, jetting of the ballast was complete except for some water left intentionally in the No. 4 port and starboard ballast tanks to give the barge a trim aft. At 1215, the rig broke free of the site and the journey commenced.

When the flotilla entered Bayou Penchant, the operator of the tug COMANCHE (the second vessel in the flotilla) alerted the crew of the TONKAWA about a port list by radio. He testified that he did not know to whom he spoke but asked that the list be corrected. He estimated the time to be about 1950. The person aboard the TONKAWA replied that nothing could be done until they reached deeper water and that they couldn't "put water in it at this time in shallow water." Approximately 1 to 1 1/2 hours before the flotilla entered Bayou Chene, the COMANCHE's operator received a call from the TONKAWA requesting their position and the time the flotilla would get to Bayou Chene. The caller did not identify himself nor did the tug operator recognize the voice. The party aboard the TONKAWA was informed that they would enter Bayou Chene between 2300 and 2330 that evening.

After the flotilla straightened out in Bayou Chene, the relief operator of the CHOCTAW, pushing at the stern of the TONKAWA, noticed a small starboard list on the barge. He informed the operator of the COMANCHE of the list and both agreed that it was a normal list when coming out of shallow water into deeper water. The

1/ For more detailed information, read Marine Accident Report--"Capsizing and Sinking of the Drilling Barge TONKAWA in Bayou Chene near Morgan City, Louisiana, May 20, 1985" (NTSB/MAR-86/07).

COMANCHE's operator instructed him "to keep an eye on it and inform him if it [gets] any worse." After about a minute or less, the CHOCTAW's relief operator radioed back to the COMANCHE and informed the operator that the "rig was listing a little bit more." The COMANCHE's operator then contacted the TONKAWA by radio and informed the driller (who was monitoring the portable radio) of the list. The driller replied that he would get someone to check it out and correct the problem. By this time, the list had increased even more. The operator of the COMANCHE said to the operator of the SIOUX (and was overheard by the relief operator of the CHOCTAW), "Let's break off and push her to the bank." At 2325, before the tugs were able to let go, the TONKAWA rolled to starboard and capsized.

At the time of the casualty, 22 persons were aboard the TONKAWA including the toolpusher, who was in charge. Seventeen were employees of Temple, four were employees of a subcontractor, Universal Catering Service, which provided hotel and catering services, and one, the operator of the crewboat RONCO 109, who happened to be aboard when the drilling barge capsized, was the employee of Best Boat Rentals.

The TONKAWA was an uninspected vessel and was not subject to any U.S. Coast Guard regulations other than the safety equipment regulations for uninspected vessels. It was classed, however, by the ABS and had an annual survey for class in April 1985, approximately one month before the accident. An initial survey of the damage to the TONKAWA was conducted at the accident site by a team of divers hired by Temple. The drilling rig had capsized in about 26 feet of water and had come to rest at an angle of about 135° from the vertical. The starboard side of the barge's hull and most of the quarters and the machinery deck were submerged. The divers surveyed the entire length of the hull which remained underwater, including the bottom, side shell, and barge deck.

A salvage diver later entered the No. 3 starboard ballast tank and tried to turn the inlet valve but found it jammed in the fully open position. The rising stem gate valve, fitted with a straight reach rod to the machinery deck level, had no indicating device at the valve stand to show whether it was open, closed, or at an intermediate position.

After the vessel was drydocked, the owners and other interested parties, including Safety Board and Coast Guard investigators, conducted a complete survey to determine the damage to the rig. The No. 3 starboard ballast inlet valve was removed and sent to a local machine shop where it was disassembled and inspected. Each working part of the valve was checked and found to be in "excellent condition." The valve was reassembled and pressure tested. The remaining ballast and sea suction valves were found to be in good condition.

After drilling at the site for approximately two months, the TONKAWA was moving to another location at the time of the accident. The TONKAWA's full complement of 17 drilling crew and 4 caterers was aboard for the move. According to Temple's vice-president for operations, it is common in the industry to move drilling barges with a full crew aboard. He stated that some maintenance projects cannot be accomplished during drilling operations and therefore are done during the tow. He stated, however, that the rig could be moved with about 10 men aboard. The routine of 12 hours on duty and 12 hours off duty for the shift workers was maintained during the tow.

The loss of 11 lives and the serious injuries sustained by other crewmembers when the TONKAWA capsized raise some questions about the soundness of the practice of keeping Temple's entire drilling crew aboard the vessel during a rig move. Temple's vice-president for operations pointed out that it was an industry practice to move rigs with the full complement of personnel aboard and that some maintenance projects

cannot be accomplished when drilling and therefore are done underway. Similar accidents have been investigated by the Safety Board involving not only drill rigs, 2/ but also lift boats 3/ and workover barges that have large numbers of workers aboard. Although the majority of these accidents were weather related and occurred offshore, the risk to personnel is similar. The Safety Board believes that some of the personnel risks involved when moving a rig can be avoided by having only the minimum number of people aboard. Temple should reevaluate the practice of retaining the entire drilling crew aboard posted drilling barges when moving them to another site.

Because drilling rigs similar to the TONKAWA are ballasted and deballasted infrequently, crews may not gain enough experience to perform the operation safely. Therefore, Temple should consider assigning a barge mover to supervise the ballasting and deballasting of this and similar drilling barges. This person should know marine aspects of the operation, including ballasting, stability, and towing, and should remain aboard during the entire move until the rig is safely ballasted in the new location. Neither the toolpusher nor the driller on duty was specifically trained in towing procedures and could not be expected to perform the functions of a qualified barge mover. The Coast Guard stability study indicated that the loading condition that existed during the tow did not comply with the recommended limits of KG contained in the operating manual for the estimated draft of the rig. The Safety Board is of the opinion that not enough attention was given to the operation of the deballasting system and rig moving operation, and that a higher priority should be given to such functions by a fully qualified individual whose only responsibility is the safe movement of the rig.

Therefore, the National Transportation Safety Board recommends that the International Association of Drilling Contractors:

> Disseminate to your association members who operate posted drilling barges similar to the TONKAWA the details of this accident report, including the associated recommendations. (Class II, Priority Action) (M-86-50)

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility ". . . to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendations and would appreciate a response from you regarding action taken or contemplated with respect to the recommendation in this letter. Please refer to Safety Recommendation M-86-50 in your reply.

GOLDMAN, Acting Chairman, and BURNETT, LAUBER, and NALL, Members, concurred in this recommendation.

Jim Burnett for

By: Patricia A. Goldman
Acting Chairman

2/ See Marine Accident Report--"Capsizing and Sinking of the U.S. Mobile Offshore Drilling Unit OCEAN RANGER, off the East Coast of Canada, 166 Nautical Miles East of St. John's Newfoundland, February 15, 1982" (NTSB-MAR-83-2).
3/ See Marine Accident Report--"Capsizing of the U.S. Self-Propeller Lift Boat AMAY S While Under Tow of the U.S. Coast Guard Cutter POINT HOPE, Gulf of Mexico, October 17, 1984" (NTSB/MAR-85/10).