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Log M-300

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

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Forwarded to:

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SAFETY RECOMMENDATION(S)
M-85-100 and -101

About 2330, on May 20, 1985, the 256-foot posted drilling barge ^{1/} TONKAWA capsized and sank in Bayou Chene, approximately 6 1/4 miles southeast of Morgan City, Louisiana. Of the 22 persons aboard when the barge capsized, 11 persons survived and 11 persons lost their lives. The TONKAWA capsized in approximately 26 feet of water and came to rest on its starboard side, about 135° from its normal upright position.

The TONKAWA had departed a drilling site in Turtle Bayou earlier that day under tow of three tugs operated by Indian Marine, Inc. After "jetting out" (deballasting) the ballast tanks, it took about 1 hour 45 minutes for the three tugboats to pull the rig off location. It was reported that soundings of the eight ballast tanks and two drill water tanks had been taken and recorded by the motorman or the rig electrician/mechanic. As it was towed through the shallow bayous, almost constantly dragging on the bottom, the TONKAWA developed a port list which varied with the depth of the water. From the drilling location in Turtle Bayou, into Bayou Penchant, and up to the intersection of Bayou Penchant and Bayou Chene, an 11-hour tow, the TONKAWA was almost always in contact with the bottom. The tug personnel estimated the draft of the barge was about 8 feet forward and about 10 feet aft.

About 1915, after entering Bayou Penchant, the operator of the tug COMANCHE reported by radio, to either the driller on tour (duty) or the toolpusher aboard the TONKAWA, that the rig had developed a port list. They mutually agreed that any correction of the list would have to be delayed until they entered deeper water in Bayou Chene. In a subsequent radio communication between the TONKAWA and the COMANCHE, the rig inquired as to when they would reach Bayou Chene. The operator of the tug COMANCHE responded by stating that they would reach Bayou Chene between 2300 and 2330. The COMANCHE was the second vessel in the flotilla, located astern of the tug SIOUX and ahead of the drill rig. The third tug, the CHOCTAW, was pushing at the stern of the TONKAWA.

^{1/} A posted drilling barge is a complete drilling rig mounted on a submersible barge that is flooded with water at the drilling site. Drilling equipment and crew quarters are mounted on a superstructure supported by columns or posts above the water level.

About 2320, after passing over a particularly shallow spot at the intersection of Bayou Penchant and Bayou Chene, the operator of the CHOCTAW noticed the TONKAWA develop a slight starboard list and an increase in the draft at the stern. He reported this information to the operator of the COMANCHE who in turn notified the rig personnel. Within a few minutes, the starboard list increased and the freeboard at the starboard after corner of the rig decreased to only a few inches. After being apprised of the situation by the operator of the CHOCTAW, the two lead tugs let go their tow lines, intending to push the TONKAWA against the bank and ground it. In less than a minute, however, the rig rolled to starboard and capsized.

Shortly before the accident the driller on the midnight to noon tour on the TONKAWA, when notified of the list, started to check individual ballast tanks and valves to determine if they contained any excess water. After looking into the No. 4 ballast tank manhole and seeing some water, the position of the No. 4 starboard ballast valve was checked by the driller and found to be closed. Although he looked into the No. 3 starboard ballast tank and also saw some water, no check was made of the No. 3 starboard ballast valve. The rig capsized before any other ballast valves and tanks were checked. During a postaccident survey conducted by divers contracted by the rig's owner, the Temple Drilling Company, the 10-inch No. 3 starboard ballast valve was found in the open position, which would have allowed the No. 3 starboard ballast tank to flood. The U.S. Coast Guard Merchant Marine Technical Branch in New Orleans, Louisiana, is seeking to determine the stability of the barge by studying the available information of its loading conditions, including the flooding of the No. 3 starboard ballast tank.

The TONKAWA was designed to drill in shallow water up to 22 feet in depth. The barge is towed onto location and ballasted until the lower barge section rests on the bottom. Eight ballast valves admit water directly into the eight ballast compartments, four in each side. For additional ballasting two drill water tanks, port and starboard, are filled through a pumphouse. The ballast valves are controlled from the machinery deck at the 28-foot level by reach rods and handwheels. There are no indicators on the deck valve stands to show the position of the valve gates. Persons operating the valves must assume that a valve is open or closed when the handwheel ceases to turn. The Safety Board believes that the safe operation of posted drilling barges like the TONKAWA would be enhanced by the addition of ballast valve position indicating devices that are readily visible at the valve stand. If such devices were provided, the persons operating the ballast valves could tell at a glance whether the valves were open or closed, thereby reducing the chance that a valve might be left open inadvertently.

Water depths in the eight ballast tanks and the two drill water tanks are determined by soundings taken through individual sounding pipes into each tank or through the access trunks in each tank, both of which are located at the machinery deck level. The tanks are not fitted with any remote liquid level indicators. A remote liquid level indicating system would provide the rig personnel with continuous information of the tank conditions. Any excess water in any of the tanks could be determined quickly and action could be taken to correct any problem before it developed into a dangerous condition.

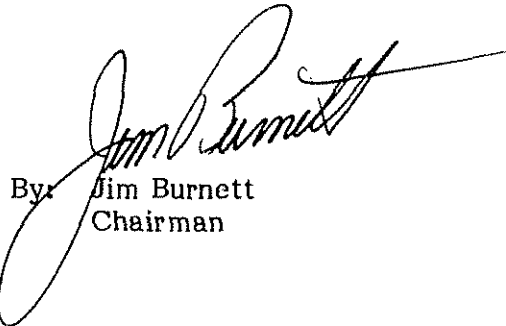
Although the TONKAWA has since been raised and moved to a ship repair facility for survey and repair, the Safety Board's investigation of the accident continues. As additional facts are developed, they will be analyzed, conclusions drawn, and further recommendations made if necessary. As a result of its investigation to date, the National Transportation Safety Board recommends that the International Association of Drilling Contractors:

Encourage its members who operate posted drilling barges similar to the TONKAWA to provide an indicating device on each manually operated ballast valve on drilling barges in their fleets so the valve positions can be observed readily at all times. (Class II, Priority Action) (M-85-100)

Encourage its members who operate posted drilling barges similar to the TONKAWA to provide remote liquid level indicators for all ballast and drill water tanks on drilling barges in their fleets to enable rig personnel to ascertain quickly from a central location the water levels in the ballast and drill water tanks. (Class II, Priority Action) (M-85-101)

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 action taken as a result of its safety recommendations. Therefore, it would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter.

BURNETT, Chairman, GOLDMAN, Vice Chairman, and BURSLEY, Member, concurred in these recommendations.


By: Jim Burnett
Chairman