Log M-257

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: November 21, 1984

Forwarded to:

Mr. Qin Wencai
President
China National Offshore Oil Corporation
31 Dong Chang An Jie
Beijing, People's Republic of China

SAFETY RECOMMENDATION(S)

M-84-70 through -73

About 2355 on October 25, 1983, the 400-foot-long United States drillship GLOMAR JAVA SEA capsized and sank during Typhoon LEX in the South China Sea about 65 nautical miles south-southwest of Hainan Island, People's Republic of China (PRC). Of the 81 persons who were aboard, 35 bodies have been located, and the remaining 46 persons are missing and presumed dead. The GLOMAR JAVA SEA currently is resting on the bottom of the sea in an inverted position in about 315 feet of water; its estimated value was $35 million. 1/

The Atlantic Richfield Company's (ARCO) office in Zhanjiang, PRC, was its base of operations in the PRC and was staffed by ARCO's operations manager, drilling superintendent, logistics manager, chief geophysicist, interpreter, three Chinese-speaking radio operators, and others. It was ARCO's usual daily working procedure to have no one in the office on duty from 1730 at night until 0700 in the morning except the radio operator, and according to the radio operator's working shift arrangement, there was no radio operator required on duty from 0600 to 0700 and from 2300 to midnight. The lack of a radio operator at ARCO's office from 2300 to 2330 on October 25 may have prevented vital information concerning the condition and the safety of the GLOMAR JAVA SEA from being transmitted ashore to key ARCO personnel. This information might have initiated emergency response to aid the drillship during the height of the typhoon.

ARCO's Zhanjiang office also was the hub of control and communications in the operations network of ARCO China, Inc., an ARCO subsidiary. ARCO Zhanjiang could communicate via single-sideband (SSB) radio with the drillship, the supply vessels, the helicopters, and Tian Du Base at Sanya, PRC; by telephone to the local office of the Nanhai West Oil Company (NHWOC); and directly to ARCO's office in Hong Kong. The availability of communications for emergency situations is an essential element of a shoreside contingency plan. Inadequate communications procedures, such as the absence of a continuous radio watch in Zhanjiang and the lack of a shoreside contingency plan, resulted in confusion as to whether the drillship had moved off location, had experienced a casualty, had sunk, or simply had lost radio contact for about 42 hours until the wreck of the GLOMAR JAVA SEA was located and identified by fathometer survey.

1/ For more detailed information, read Marine Accident Report—"Capsizing and Sinking of the United States Drillship GLOMAR JAVA SEA in the South China Sea, 65 Nautical Miles South-Southwest of Hainan Island, People's Republic of China, October 25, 1983" (NTSB/MAR-84/08).

ARCO's SSB radio working frequency of 6521.8 kHz was assigned by the PRC. ARCO, in its everyday radio communications, did not monitor the high-frequency international calling and distress radio frequencies of either 2182 kHz or 8364 kHz of which their SSB units were capable. Even though the GLOMAR JAVA SEA and other vessels on the PRC's outer continental shelf carried equipment which would broadcast signals on the international calling and distress frequencies in the event of an emergency, neither ARCO nor the NHWOC maintained any radio listening watch on these frequencies. Therefore, had the GLOMAR JAVA SEA or one of its lifeboats sent out a distress radio signal on these frequencies, neither the ARCO radios nor the NHWOC radios would have received the transmissions. The frequency 500 kHz in the medium frequency band also is an international calling and distress radio frequency. Its use is for keyed, Morse Code radiotelegraphic communications only. The Safety Board believes that the China National Offshore Oil Company (CNOOC) should establish emergency response centers at Tian Du, Zhanjiang, Guangzhou, and other centers of offshore oil operations which would maintain an around-the-clock listening watch on the international maritime distress frequencies of 2182 kHz and 8364 kHz in addition to the designated operating frequencies and in time of emergencies would coordinate the activities of air and sea rescue resources and shoreside rescue centers.

The MARISAT communication system has a distress signal transmission capability. However, the rolling and starboard list of the drillship may have precluded the drillship's satellite antenna from maintaining a lock on the Pacific communication satellite. Once the lock was lost, it would have been difficult and taken some time to reestablish communications via MARISAT. Therefore, when the MARISAT communication to Houston was cut off at 2346, the crew aboard the GLOMAR JAVA SEA probably also lost the capability of transmitting a distress signal. The lack of any facilities to receive a distress message from the drillship indicates a need for action to improve emergency radio procedures for vessels operating in the South China Sea by both the drilling companies and the CNOOC.

Although ARCO participated in the development of the GLOMAR JAVA SEA's typhoon plan, ARCO itself did not have any contingency plan in case the GLOMAR JAVA SEA or any of the Chinese supply vessels or helicopters encountered difficulties. Since ARCO controlled the drillship, the supply vessels, the helicopters, and the radio communications, it was ARCO's responsibility to develop a contingency plan for an emergency. ARCO personnel knew that Typhoon LEX was predicted to pass near the drillship during the night of October 25 yet no one, except the Chinese radio operators, remained on duty to monitor for communications from the GLOMAR JAVA SEA or the NANHAI 205. No radio operator was on duty from 2300 to midnight and from 0600 to 0700, and no plan was in place for the radio operators to alert the ARCO operations manager or superintendent at their hotel had a distress message been received. Fortunately, the NHWOC office was manned as usual that night and received the message that the crew of the drillship had donned lifejackets and requesting that the ARCO operations manager be alerted. If the drillship had been able to make contact with ARCO headquarters in Zhanjiang at 2300, ARCO might have learned specific details of any problems aboard the vessel. Instead, the drillship was able to leave only a "call back" message with the Chinese radio operator in Sanya.

Although no lives were saved by the GLOMAR JAVA SEA's standby boat, the NANHAI 205, the capsizing and sinking of the GLOMAR JAVA SEA again emphasizes the need for suitably equipped standby vessels. Canada, Norway, and the United Kingdom all require a standby boat for mobile offshore drilling units operating off their coasts. Since standby boats are already an integral part of drilling operations of a mobile offshore drilling unit, both the U.S. Coast Guard and the CNOOC should require that a suitable vessel, properly equipped for ocean rescue, be assigned to all mobile offshore drilling units when moored over a drill site.

Moreover, standby vessels should use their radar and all available radio equipment to keep in contact with the drillship and shoreside facilities during periods of severe weather or limited visibility. The NANHAI 205 was not using its radar and turned off its SSB radio around 2315 on October 25, 1983, leaving only its VHF radio for communication. Had the NANHAI 205 maintained a radio watch on its SSB radio, the NANHAI 205 might have been alerted earlier of the lack of radio communication between shoreside facilities and the GLOMAR JAVA SEA. If shoreside ARCO personnel had been able to contact the NANHAI 205 sooner, they might have realized that the drillship was in trouble. Without radio contact with either vessel, the shoreside radio station did not know whether the lack of communication was due to the weather conditions or some problem aboard the vessels. Although maintaining radar contact with the GLOMAR JAVA SEA under the severe weather conditions would have been difficult, the NANHAI 205 should have attempted to keep radar contact and thereby might have been alerted sooner of the drillship's disappearance. Both ARCO and the CNOOC should require that standby boats use their radar and maintain a radio watch on all available radio equipment at night and under adverse weather conditions. This would provide an additional safeguard in the operation of both the supply vessels and the mobile offshore drilling units.

Therefore, the National Transportation Safety Board recommends that the China National Offshore Oil Corporation:

> Establish emergency response centers at Tian Du, Zhanjiang, Guangzhou, and other centers of offshore oil operations which would maintain a continuous listening watch on the international maritime distress frequencies of 2182 kHz and 8364 kHz, as well as the designated operating frequencies, and in time of emergencies would coordinate activities of air and sea rescue resources and shoreside rescue centers. (Class II, Priority Action) (M-84-70)
>
> Require all oil companies operating off the coast of the People's Republic of China to develop and submit for your review detailed contingency plans which should include communications procedures and an inventory of air and sea rescue resources and shoreside facilities available for various emergencies, including severe storms. (Class II, Priority Action) (M-84-71)
>
> Require that a suitable vessel, capable of retrieving persons from the water under adverse conditions, be assigned to all mobile offshore drilling units operating off the coast of the People's Republic of China at all times for the purposes of evacuating personnel from the unit in an emergency. (Class II, Priority Action) (M-84-72)
>
> Require the standby vessels for a mobile offshore drilling unit off the coast of the People's Republic of China to maintain a 24-hour radio watch on radio distress and operating frequencies and to use their radar during periods of reduced visibility to maintain contact with the mobile offshore drilling unit. (Class II, Priority Action) (M-84-73)

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 recommendations in this letter.

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

By: Jim Burnett
Chairman