

NATIONAL TRANSPORTATION SAFETY BOARD
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Log M-208
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Forwarded to:

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SAFETY RECOMMENDATION(S)

M-83-49

On March 31, 1982, the Liberian tank vessel M/V ARKAS was upbound in the Mississippi River carrying a cargo of crude oil, and passing the upbound towboat M/V CREOLE GENII, which was pushing three barges carrying No. 6 oil, when the vessels collided near Thirty-five Mile Point, at mile 130, Above Head of Passes, Mississippi, at 2118. The collision ruptured the ARKAS' hull, and escaping crude oil was ignited. Because the ARKAS' crew feared an explosion, they anchored the vessel along the east riverbank and then abandoned it. Damage was estimated to be \$50,000 to the CREOLE GENII tow, \$15 million to the ARKAS, and more than \$71,000 to the environment. No one was seriously injured. 1/

The CREOLE GENII was pushing three tank barges in a line ahead. The raked bow barge BOBBIE was in the lead followed by the TIM and the GIRL. The tow, including the towboat, was 815 feet long and 50 feet wide. Each of the barges was loaded to about a 9-foot draft carrying a total of 50,000 barrels of No. 6 oil, and the towboat's draft was about 9 feet 6 inches, according to the operator. The operator alone piloted the tow and controlled the towboat's dual engines from the pilothouse. Although there was a patchy, low fog on the river, the operator did not sound fog signals or post a lookout.

The towboat was equipped with radar with the scope located to the left side of the pilothouse and close to the maneuvering controls. The radar was turned on and set on the 1 1/2-mile range scale. Two radiotelephone sets were turned on, monitoring VHF-FM channels 16 and 67. There was no evidence of any malfunctioning of the towboat's engines, steering system, or navigation equipment. The towboat's pilothouse arrangement provided good all-around visibility.

A New Orleans-Baton Rouge pilot had boarded the ARKAS off Chalmette, below New Orleans, at 1700. The pilot observed that the river stage was 12.5 feet at the Carrollton gage, and estimated that the river current was 5 to 6 knots (6 to 7 mph). He said that the ARKAS was proceeding at less than 10 knots average over the ground

1/ For more detailed information, read Marine Accident Report--"Collision of U.S. Towboat CREOLE GENII and Liberian Tank Vessel ARKAS, near mile 130, Mississippi River, March 31, 1982" (NTSB/MAR-83/49).

because he changed engine speed while maneuvering up the river. Although there was a patchy surface fog over the river, the visibility from the ARKAS' navigation bridge was described as good, and the navigation lights of other vessels could be seen easily. No fog signals were sounded by the ARKAS, but the pilothouse doors to the port and starboard bridge wings were kept open to hear other vessels' whistle signals, according to the pilot.

At 2101, the CREOLE GENII's operator requested, by radiotelephone, that the ARKAS pilot overtake his tow on "one whistle." The CREOLE GENII was then at Thirty-five Mile Point. The ARKAS' master said that the CREOLE GENII was 0.8 nautical mile distant on the radarscope when it crossed to the west bank ahead of the ARKAS. At 2108, the ARKAS' pilot identified the CREOLE GENII on radar, and he saw the towboat's lights while the tow was abreast of the Freetown Light Pier, across the river from Thirty-five Mile Point.

Between 2115 and 2116, the ARKAS passed Thirty-five Mile Point Light Tower abeam to starboard, according to the master. The pilot, in reconstructing the vessels' movements, placed the ARKAS about 450 feet distant when abeam of Thirty-five Mile Point Light; on a chart he marked as he testified at the hearing, the pilot portrayed the CREOLE GENII then to be about 1,200 feet from the ARKAS' port bow, with the tow paralleling the heading of the ARKAS. He estimated that the Freetown Light Pier was about 900 feet from the ARKAS' port side when it was passed.

At 2116, the pilot of another vessel called the ARKAS' pilot asking that he shift to another radiotelephone channel. Both pilots shifted to channel 77 and carried on a brief conversation. The ARKAS' pilot said that he used his portable radiotelephone, and he estimated that the conversation lasted 10 to 15 seconds. The channel 77 communication was not recorded by the VTS. At 2116, the CREOLE GENII's operator was also calling the ARKAS to advise that it appeared his tow was going crossways in the river, and to request that the ARKAS' pilot speed up his vessel. The ARKAS' engine was then at full speed ahead, and the vessel was moving about 8 to 9 mph over the ground, building up to full speed, according to the pilot. The ARKAS' pilot portrayed the CREOLE GENII tow as then heading toward midstream. Shortly thereafter, the tow swung to a heading almost directly toward the east bank, across the track of the ARKAS. The ARKAS' pilot estimated that the CREOLE GENII's tow was about 1,200 feet away when it "topped out." The ARKAS' master estimated that the CREOLE GENII's lead barge was about 900 feet from the ARKAS' port bow; he said that he could see the tow's green navigation light as it swung toward the ARKAS.

At 2117, the ARKAS' pilot advised the CREOLE GENII's operator to back his tow. Shortly thereafter, when the ARKAS' pilot saw the CREOLE GENII tow heading toward the ARKAS, he requested "right 20 degrees" on the helm. The ARKAS' pilot said that he was concerned about maneuvering the ARKAS too close to the east bank because of possible bank effect on the vessel.

At 2118, the CREOLE GENII's engines were backing full astern, the tow was swinging to the right, and the ARKAS was moving forward at full engine speed ahead when the lead barge BOBBIE's starboard bow corner struck and ruptured the ARKAS' hull on the port side as it moved past. When the hull was ruptured, crude oil began to pour from the No. 4 port wing tank and was ignited. The flames from the burning oil rose about 30 feet above the ARKAS' main deck, and the burning oil was carried on the water along the vessel's port quarter. Flaming oil also spilled on the BOBBIE'S forward deck. The angle of collision between the longitudinal axes of the CREOLE GENII tow and the ARKAS was estimated by the ARKAS' pilot and master to be from 45° to 60°, while the

CREOLE GENII's operator depicted the angle to be about 20°. The position of the vessels at collision was placed at 1,050 feet and 3,500 feet northward from the end of the Freetown Light Pier end, and at 1,500 feet westerly and 2,300 feet north-northwesterly from Thirty-five Mile Point Light, by the CREOLE GENII's operator and the ARKAS' pilot, respectively. The ARKAS pilot's position was about 2,450 feet farther upstream than the CREOLE GENII operator's; the ARKAS' master placed the collision position only 1,850 feet farther upstream. The positions were near Mile 130 AHP (Above Head of Passes).

In its analysis of the accident, the Safety Board determined that the CREOLE GENII had crossed the river at Thirty-five Mile Point and was north of the Freetown Light Pier as it was being overtaken by the ARKAS. The CREOLE GENII's operator earlier had agreed to the ARKAS' overtaking on the tow's starboard side, and he expected that his tow would be near the west bank when the ARKAS overtook him. While the CREOLE GENII was crossing the river from the east to the west bank, its upriver speed over the ground was reduced from about 4 mph to about 1 mph as it encountered the full force of the 5- to 6-knot (6- to 7-mph) current, and its operator experienced difficulty keeping the tow aligned against the current.

The low patchy fog tended to obliterate forward landmarks and navigation aids which the CREOLE GENII's operator normally would have used to detect tow-heading changes while maneuvering. The operator did not use the CREOLE GENII's swing indicator or the magnetic compass, which could have indicated heading changes, and he did not use the radar for navigation. Additionally, radiotelephone communications regularly diverted his attention while he was maneuvering. Although some shore lights were occasionally visible abeam, these lights would not have been as useful to the operator as lights forward for detecting tow swing. Because the west bank above the Freetown Light Pier consists of marshy vegetation, and the levee diverts up to 1 mile from the river channel, the availability of landmarks was limited and particularly poor in fog. Consequently, since the CREOLE GENII's operator did not or could not use effectively the navigation equipment available to him, he was maneuvering his tow against the river current almost blindly because of the fog. Although the operator intended to keep his tow close to the west bank, the evidence establishes that the tow was near midstream just before the accident.

The investigation of the accident revealed that there sometimes is a river eddy current at Thirty-five Mile Point above the Freetown Light Pier. Such an eddy might have set the CREOLE GENII toward midstream, and if so would have moved it toward the path of the ARKAS. The CREOLE GENII's operator may not have detected the set because of the fog. The Safety Board believes that had the CREOLE GENII's operator effectively used the radar equipment available to him, he should have been able to navigate close to the west bank as he originally planned despite the fog and any encounter with an eddy.

The Mississippi River widens to more than 2,000 feet at the collision site. There is sufficient water depth so that if the ARKAS had been close to the east bank and the CREOLE GENII tow had been close to the west bank, the entire length of the tow could have been rotated with adequate and safe distance between the vessels themselves and the riverbanks. Therefore, the Safety Board believes that the vessels could have passed safely at the location where the vessels collided.

When the ARKAS neared the CREOLE GENII starboard quarter, the operator was too occupied maneuvering his tow to observe the ARKAS' angle of approach. The CREOLE GENII's operator said that the ARKAS was only 50 feet away as it came abeam of his tow, and it appeared to him that the ARKAS was moving to the left. However, it is

likely that the operator misjudged the ARKAS' direction of movement because the tow was then already swinging to starboard, and he would have been unable to correlate his tow's heading change without reference to landmarks, which were obscured by the fog. According to the ARKAS' pilot, at this time his vessel was then turning to the right toward the east bank. If, as described by the CREOLE GENII's operator, the ARKAS was 50 feet from the CREOLE GENII, this proximity could have resulted in interactive hydrodynamic forces between the vessels. When the ARKAS' bow was near the CREOLE GENII's stern, the interaction could have caused the ARKAS' bow to repulse the CREOLE GENII. The resultant forces would have tended to deflect the ARKAS' bow to the right and the CREOLE GENII's stern to the left, thereby causing the tow's lead barge to be deflected to the right. If the tow's lead barge was so deflected, the downbound current bearing on the port side of the tow would have caused the tow to move to the right and possibly caused the operator of the CREOLE GENII to conclude that the ARKAS was moving to the left.

The record of the CREOLE GENII's radio communications shows that the operator lost control of his tow before 2116:57, or 1 to 2 minutes before the collision. There is conflicting testimony as to how far apart the vessels actually were when the CREOLE GENII's operator lost control of his tow. Whether the collision of the vessels was caused by the west bank river eddy current setting the CREOLE GENII toward the ARKAS, by the ARKAS' wide turn, by the strong river current acting on the opposite bows of the vessels and setting both vessels toward each other, or by a combination of these factors could not be determined positively. However, it is evident that there ultimately was not enough clearance between the vessels for them to pass each other safely in the overtaking situation. Tows not infrequently encounter maneuvering problems, and the ARKAS' pilot could have anticipated that if the CREOLE GENII's operator lost control, the current would deflect and swing the CREOLE GENII tow toward the ARKAS. Accordingly, prudent navigation practice should have caused him to give the tow as much clearance as possible while overtaking. Because of his 60-foot higher overview of the overtaking situation from his navigation bridge, the ARKAS' pilot could have observed the need to delay overtaking until there was a safer distance between the vessels, and he could have used radiotelephone communications to establish a mutually acceptable passing location.

Before the tow was deflected to the right, the CREOLE GENII's operator could have averted the collision by turning his tow toward the west bank, thereby opening the passing distance between the vessels. However, the operator was not fully aware of the danger of his situation until he saw the ARKAS' hull abeam of his pilothouse. By then, the tow was already being deflected to the right toward the ARKAS at a rate probably too great to be counteracted by proceeding ahead, because the CREOLE GENII was insufficiently powered for the task. When the tow swung to the right, its upriver over-the-ground speed was reduced, but its speed across the river toward the ARKAS increased significantly. Had the operator anticipated this increased crossriver speed of the tow and backed, there would have been a greater clearance for the overtaking, and the accident might have been averted. Only when he was prompted by the ARKAS' pilot did the CREOLE GENII's operator put his towboat's engines full astern. Had the operator backed earlier to slow the closing or to parallel the ARKAS, the collision might have been averted or the resultant damage might have been diminished. However, the delayed backing maneuver did not adequately check the tow's way or diminish the swing of the tow to the right, and the BOBBIE's bow starboard corner struck the ARKAS' side. Because the ARKAS' engines were already at full speed ahead, the ARKAS' pilot was unable to comply with the CREOLE GENII operator's request that the ARKAS' passing speed be increased to avoid the collision; that he did not so inform the towboat operator did not affect the accident sequence since the CREOLE GENII's limited maneuvering capability could not have averted the accident at this point.

Therefore, the National Transportation Safety Board recommends that the New Orleans-Baton Rouge Steamship Pilots Association:

Remind member pilots of the importance of giving maximum clearance to tows while maneuvering in areas where currents may cause a tow to take on a high crossriver speed component if tow control is lost and the tow is deflected. (Class II, Priority Action) (M-83-49)

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" (P.L. 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.

BURNETT, Chairman, GOLDMAN, Vice Chairman, McADAMS, BURSLEY, and ENGEN, Members, concurred in this recommendation.


By: Jim Burnett
Chairman