U.S. Department of Homeland Security

United States Coast Guard

Commandant
United States Coast Guard

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16732

AUG 16 2005

FORMAL INVESTIGATION INTO THE ALLISION OF THE LIBERIAN TANK VESSEL HYDE PARK WITH THE M/V HERMAN POTT AND TOW, AND THE SUBSEQUENT ALLISION WITH THE DOMINO SUGAR FACILITY AND THE M/V MISS LESLIE, AT MILE MARKER 90 ON THE MISSISSIPPI RIVER ON 26 FEBRUARY 1999, WITH SEVERE DAMAGE AND POLLUTION, AND NO KNOWN INJURIES OR LOSS OF LIFE

ACTION BY THE COMMANDANT

The record and the report of the Formal Investigation convened to investigate the subject casualty have been reviewed. The record and the report, including the findings of fact, analysis, conclusions, and recommendations are approved subject to the following comments.

ACTION ON RECOMMENDATIONS

Recommendation 1: It is recommended that 33 CFR Part 164 be amended to require all vessels over 1600 gross tons to maintain and operate a bell log recorder, a course recorder, and a rudder angle indicator recorder.

Action: We concur with the intent of this recommendation. While we agree with the requirements proposed in the recommendation we believe they should be applied to vessels of 3000 gross tons and greater instead of vessels over 1600 gross tons to better align it with other navigation safety regulations. We are currently working on a project to develop proposed amendments to 33 CFR Part 164 and will incorporate the requirements described in this recommendation into that project.

Recommendation 2: It is recommended that a copy of this report be provided to the Liberian Maritime Administration.

Action: We concur with this recommendation. We will provide a copy of this report to the Liberian International Ship and Corporate Registry.

[redacted]

moa
16732

FEB 19 2004

SECOND ENDORSEMENT on MSO New Orleans ltr 16732 of 07 May 2002

From: M. D. DRIEU [redacted] 2/19/04
Acting
CGD8 (m)

To: COMDT (M-MOA)

Subj: FORMAL INVESTIGATION INTO ALLISION OF THE LIBERIAN TANK VESSEL HYDE PARK WITH THE M/V HERMAN POTT AND TOW, AND THE SUBSEQUENT ALLISION WITH THE DOMINO SUGAR FACILITY AND THE M/V MISS LESLIE, AT MILE MARKER 90 ON THE MISSISSIPPI RIVER ON 26 FEBRUARY 1999, WITH SEVERE DAMAGE AND POLLUTION, AND NO KNOWN INJURIES OR LOSS OF LIFE

1. Forwarded to Commandant for review and approval. We concur with the Investigating Officer's conclusions and recommendations.

2. We agree with recommendation #1 to amend the regulations to require all vessels over 1600 gross tons to maintain and operate a bell log recorder, a course recorder, and a rudder angle indicator recorder. In addition, we recommend that Commandant provide the Liberian Maritime Agency with a copy of this report.

#

Copy: MSO New Orleans

16732
9 May 02

FIRST ENDORSEMENT on LCDR Norris ltr 16732 of 7 May 02

From: Commanding Officer, Coast Guard Marine Safety Office New Orleans
To: Commandant (G-MOA)
Via: Commander, Eighth Coast Guard District (m)

Subj: FORMAL INVESTIGATION INTO THE ALLISION OF THE LIBERIAN TANK VESSEL HYDE PARK WITH THE M/V HERMAN POTT AND TOW, AND THE SUBSEQUENT ALLISION WITH THE DOMINO SUGAR FACILITY AND M/V MISS LESLIE, AT MILE MARKER 90 ON THE MISSISSIPPI RIVER ON 26 FEBRUARY 1999, WITH SEVERE DAMAGE AND POLLUTION, AND NO KNOWN INJURIES OR LOSS OF LIFE

1. Forwarded, concurring with all conclusions and recommendations. Although I considered initiating civil penalty action against the pilot, Captain [redacted] for negligent operation of a vessel, I determined that there were too many facts in dispute to pursue such a case.

[redacted]
S. W. ROCHON

U.S. Department of Transportation
United States Coast Guard

United States Coast Guard
Marine Safety Office New Orleans

1615 Poydras Street
New Orleans, LA 70112
Staff Symbol: SIO
Phone: (504) 589-6253
FAX: (504) 589-4236

16732
7 May 2002

From: LCDR Andrew J. Norris, USCG, Investigating Officer
To: Commandant (G-MOA)
Via: (1) Commanding Officer, Coast Guard Marine Safety Office New Orleans
(2) Commander, Eighth Coast Guard District

Subj: FORMAL INVESTIGATION INTO THE ALLISION OF THE LIBERIAN TANK VESSEL HYDE PARK WITH THE M/V HERMAN POTT AND TOW, AND THE SUBSEQUENT ALLISION WITH THE DOMINO SUGAR FACILITY AND M/V MISS LESLIE, AT MILE MARKER 90 ON THE MISSISSIPPI RIVER ON 26 FEBRUARY 1999, WITH SEVERE DAMAGE AND POLLUTION, AND NO KNOWN INJURIES OR LOSS OF LIFE

PRELIMINARY STATEMENT

1. A one man formal investigation was convened by the Commander, Eighth Coast Guard District to investigate the 26 February 1999 allision between the T/S HYDE PARK and the tow of the M/V HERMAN POTT, and her subsequent allisions with the Port Ship Services and Domino Sugar facilities. A public hearing was held in New Orleans, Louisiana, on 8, 9, 10, 11, and 12 March 1999. During the hearing, fourteen witnesses were called and 92 items of evidence were received. The board was held open to receive additional items of evidence and to allow for a visit to the HYDE PARK. A total of 121 exhibits were ultimately received into evidence. The board was formally closed on 2 September 1999. Halcot Shipping Corporation, the owner of the T/S HYDE PARK; [redacted] New Orleans - Baton Rouge Steamship Pilots Association pilot #[redacted] (NOBRA [redacted]); [redacted] Crescent River Port Pilots Association pilot #[redacted] (Crescent [redacted]); and Midland Enterprises Inc., owner of the tug HERMAN POTT, were designated as Parties in Interest and accorded all rights thereto. A representative of the Liberian Registry, Mr. [redacted] (Captain, USCG, retired), sat at the head table for the duration of the board. A court reporter was present during all witness testimony, and a verbatim transcript of all witness testimony was produced. This transcript was made available to all parties in interest.

FINDINGS OF FACT

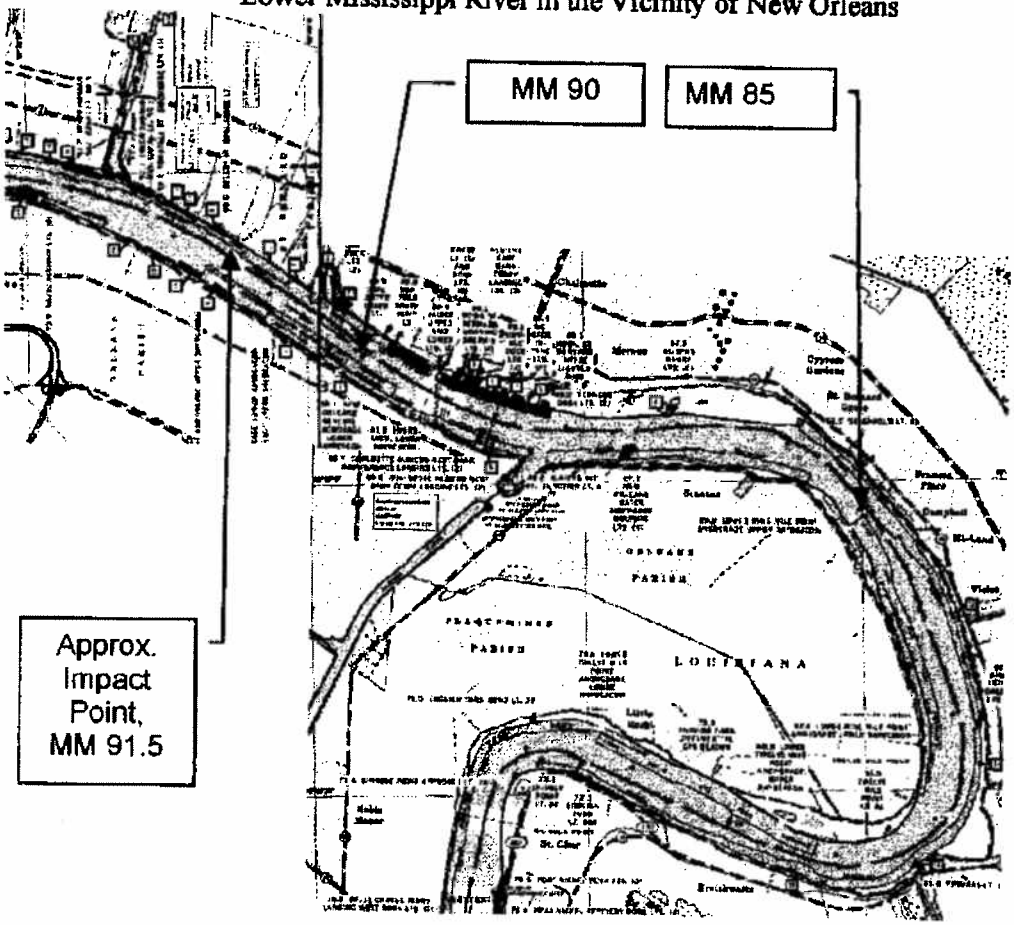
I. SUMMARY

2. At approximately 1830 on 26 February 1999[1], the Liberian-registered tankship HYDE PARK was upbound on the Lower Mississippi River (LMR) when she experienced a loss of cooling

[1] All dates are in 1999 unless otherwise indicated. All times are Central Standard Time.

water pressure. The pilot immediately anchored the vessel near the right-descending (west)[2] bank of the river at approximately mile 91.7[3], just above Quarantine Anchorage. Since 33 CFR 110.195(18) prohibits loaded tankships from anchoring in Quarantine Anchorage without permission from the Captain of the Port, the MSO New Orleans Operations Center directed the HYDE PARK to proceed to the nearest available anchorage once temporary repairs to the cooling system were completed. At approximately 2220, the HYDE PARK, with the assistance of two tugs, began to turn around to head to a nearby downriver anchorage. During this turn, the HYDE PARK crossed the river, allided with the tow of the M/V HERMAN POTT, and allided with the Port Ship Services and Domino Sugar facilities, all on the east bank of the LMR. These contacts resulted in substantial structural damage to the HYDE PARK; the sinking or disabling of several barges in the HERMAN POTT's tow; the total loss of the crew boat MISS LESLIE, which was moored at Port Ship Services; minor damage to the involved shore facilities; and a spill of eight metric tons of fuel oil from the HYDE PARK in the LMR.

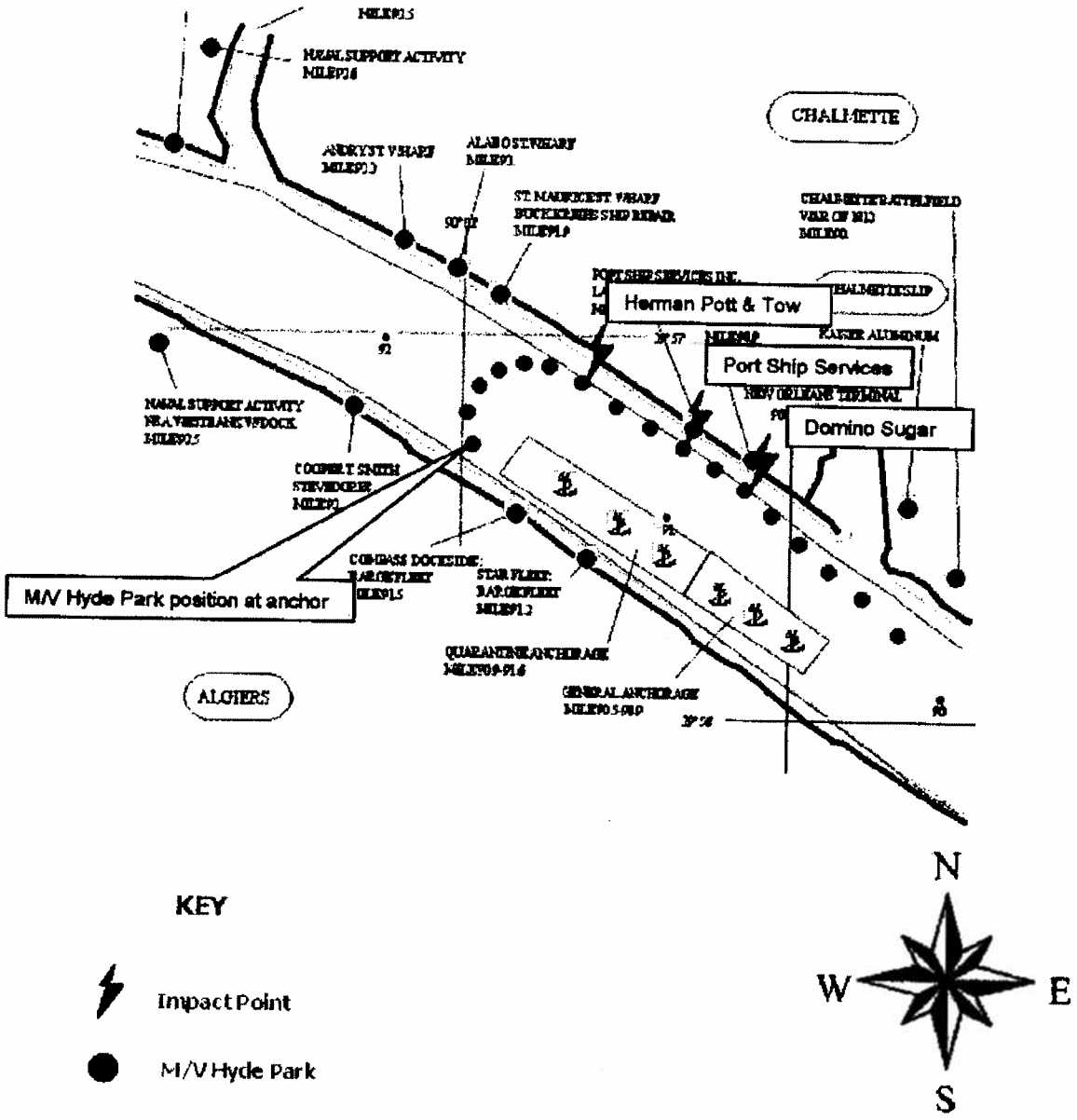
Lower Mississippi River in the Vicinity of New Orleans



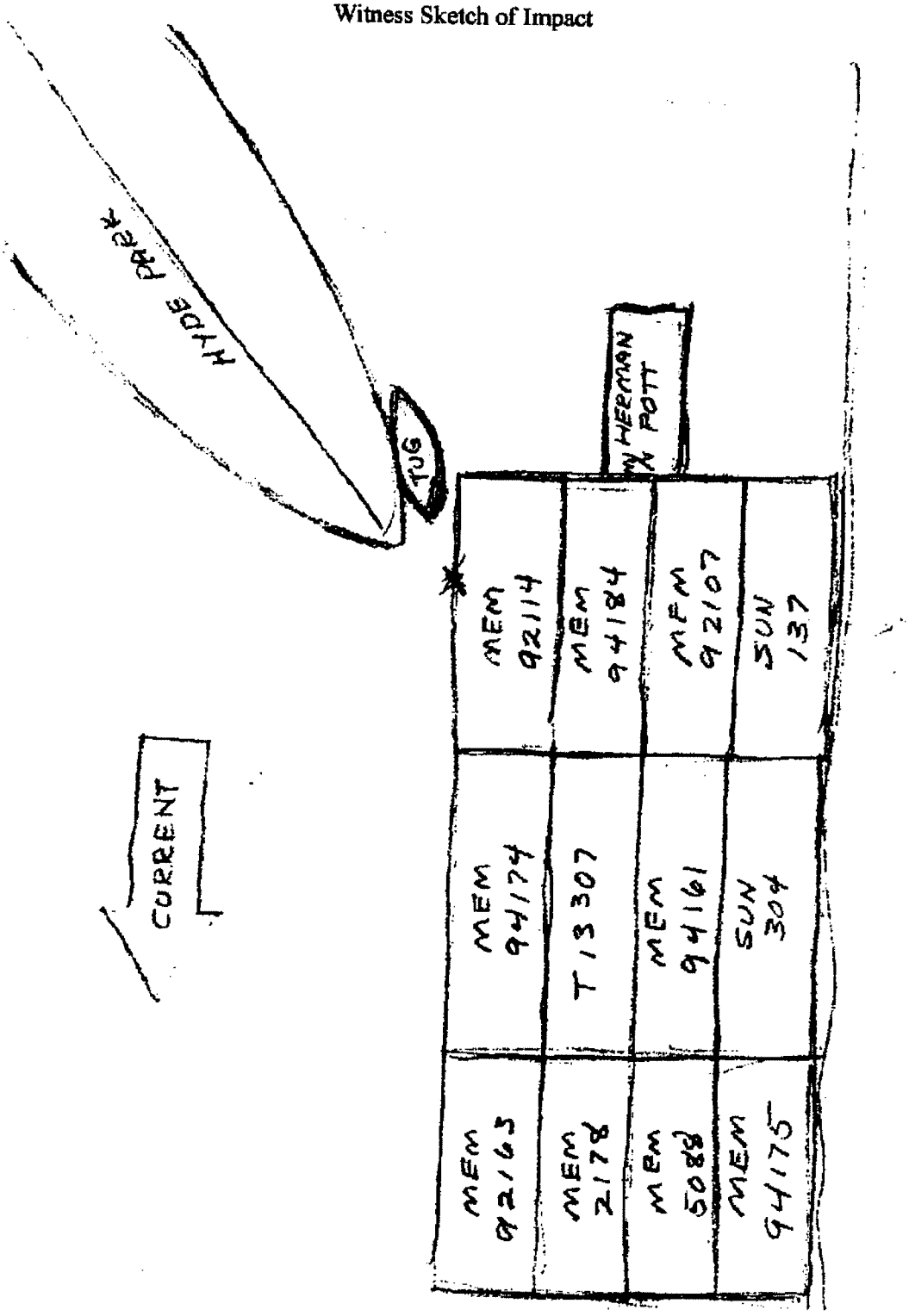
[2] The terms "right-descending" or "west" bank will be used interchangeably, as will the terms "left-descending" or "east" bank.

[3] Mississippi River river mileage references reflect the distance above the Head of Passes (AHOP). The Head Of Passes refers to the confluence of Pass Loutre, South Pass, and Southwest Pass at the mouth of the Lower Mississippi River (LMR).

Casualty Sequence of Events



Witness Sketch of Impact



II. VESSEL AND CARGO DATA

A. HYDE PARK

3. Tabulated Data

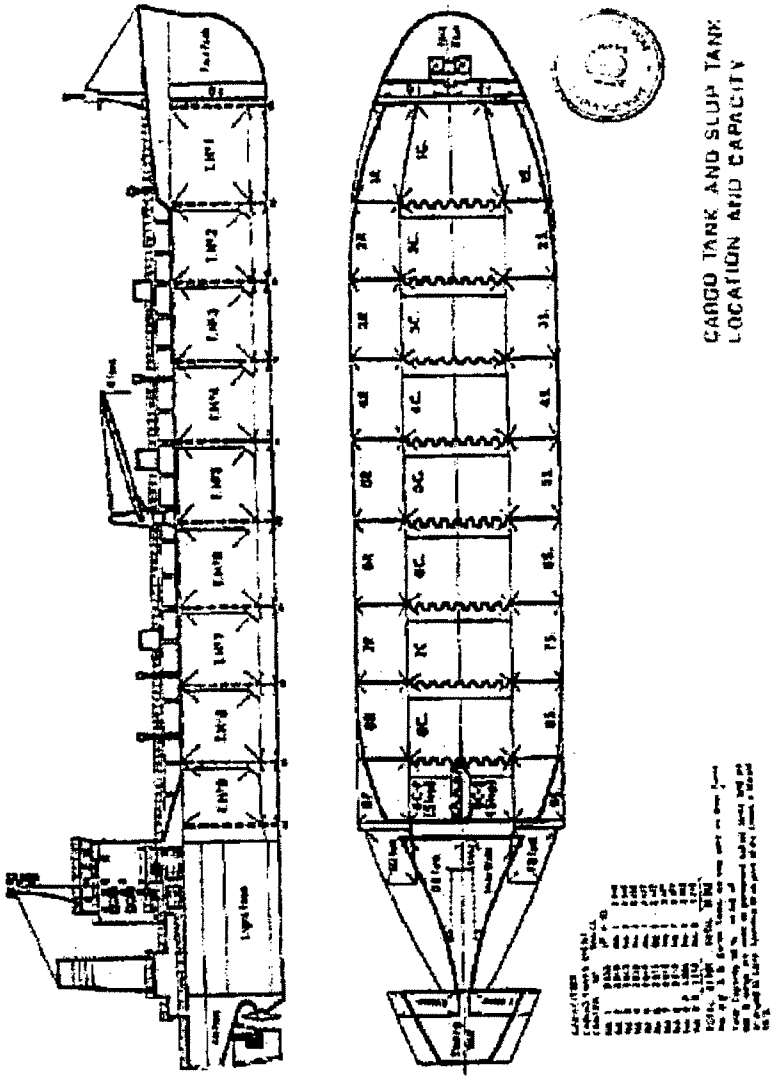
Name	HYDE PARK
Lloyd's Number	L7931856
Service	Tank Ship
Flag	Liberia
Owner	Halcot Shipping Corporation
Classification Society	Lloyd's Register
Keel Laying	October 31, 1980
Build Date	July 30, 1982
Builder	Astilleros Espanoles, Bilbao, Spain
Gross Tons	22,103 MT
Deadweight Tonnage	38,892 MT
Length	173.50M (569 ft 2.7 in)
Breadth	32 M (104 ft 11 in)
Bridge to Bow Distance	138.8M (455 ft 4.6 in)
Bridge to Stern Distance	34.7M (113 ft 10.1 in)
Draft on 26 February 1999	Bow 27 Feet, Stern 33 Feet
Propulsion	Diesel Direct Drive
Engine	1 Diesel, AESA B & W L670FCA
Fuel	Heavy fuel, carried in 10 fuel tanks
Bow Thruster	850 HP, Conave 375 TV (disconnected and inoperative)
Horsepower	13,100 horsepower
Propeller	Fixed R/H 4 Blades
Generators	Three Wartsila Diesel, 900 KW
Total Cargo Capacity	46,153 CBM
Cargo on 26 February 1999	17, 081 Tons of Pyrolysis Gasoline 7870.731 KG Benzene Concentrate
Construction	Single skinned conventional

4. Maneuvering Characteristics

Engine RPMs and speeds (in knots) in maneuvering mode are as listed below:

Engine order	RPM	Speed loaded	Speed ballast
Full ahead	100	11	11
Half ahead	80	9	9
Slow ahead	55	7	7
Dead slow ahead	40	5	5
Dead aslow astern	40	4	4
Slow astern	55	5.6	5.6
Half astern	80	7.2	7.2
Full astern	100	8.8	8.8

Schematic of M/T KENTWOOD PARK, sister ship of M/T HYDE PARK



The HYDE PARK's maximum sea speed is 14.5 knots (123 RPM), and her minimum speed is 5 knots (40 RPM). The HYDE PARK takes approximately ten minutes to slow down from sea to maneuvering speed, though in an emergency it can be done immediately. In maneuvering mode the engine can be changed without delay from one speed to another. Her engine needs to be stopped and started every time the ship transitions between ahead and astern bells. For example, if the engine is at slow ahead and the command is received to turn for slow astern, the engine first has to be stopped. It takes approximately 2-5 seconds to stop the engine from slow ahead. Once the governor senses that the engine is stopped (i.e. no RPMs), the camshaft automatically shifts to the ordered direction (astern) and start air is ported to the engine. When the governor senses rotation, it admits fuel to the engine and the combustion process begins. From stop, it takes approximately 5-7 seconds to start the engine and turn for slow astern. It takes approximately 7-10 seconds to increase RPMs from slow astern to full astern. The engine takes approximately 120 seconds to transition from full ahead to full astern. Vibrations are not typically felt on the bridge when the ship is operating ahead; the exceptions to this are when the engine is in the critical range (between 60 and 80 RPMs), and in certain sea and wind conditions. Vibrations are more easily felt when the ship is operating astern. According to the ship's crew, when the ship is operating astern, the vibrations increase as the engine RPMs increase. The HYDE PARK backs to port.

5. Bridge Equipment

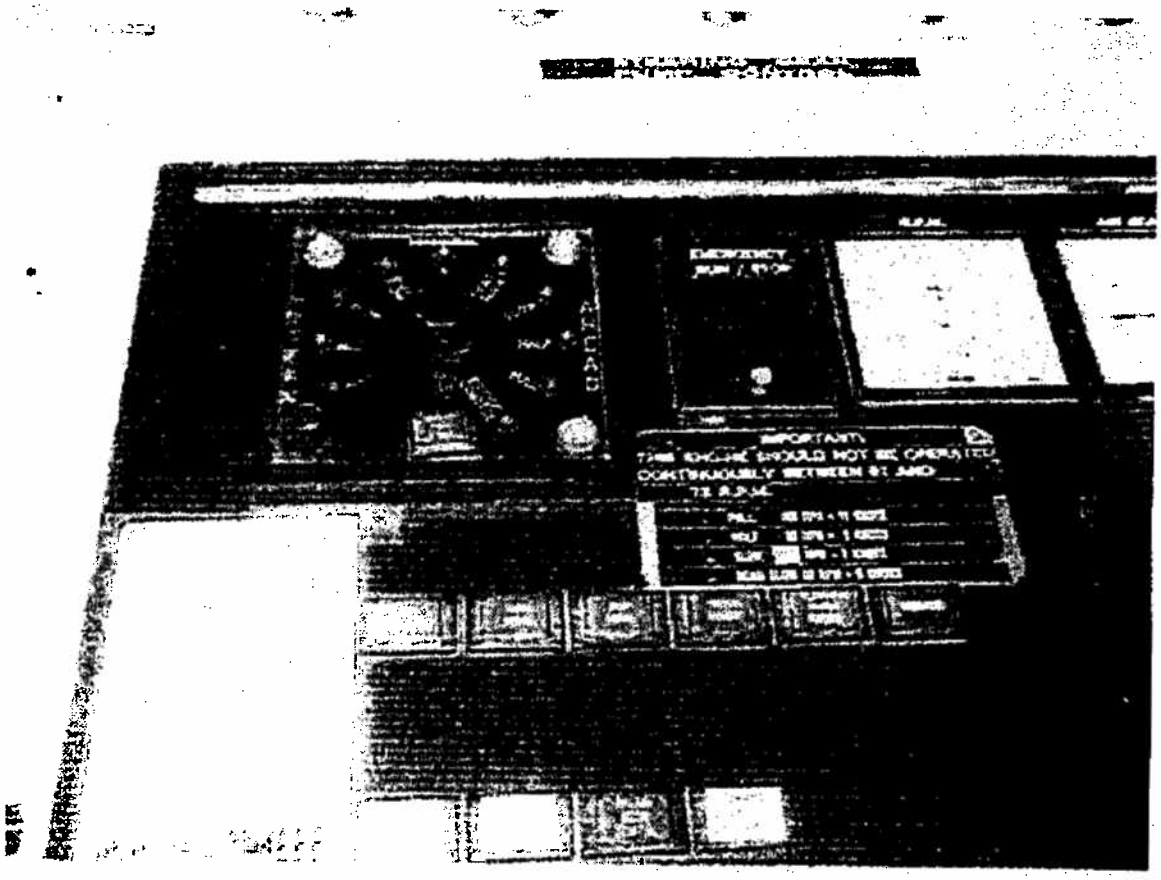
The HYDE PARK has a standard navigational suite, including 2 radars, a radio direction finder, Loran receivers, a fathometer, a magnetic and a gyro compass, and two radios. The telegraph and the helm are on a control console 1 ½ - 2 meters from the windows at the front of the bridge. The view from the console is unobstructed. There are two main engine RPM indicators in the pilothouse, one on the console to the right of the telegraph and one forward on the bulkhead between the windows. There is also a main engine RPM indicator on each bridge wing. On the bridge wing RPM indicators, forward bells are indicated in the left quadrant, astern bells in the right quadrant. On the RPM indicator on the pilothouse console, forward bells are indicated in the right quadrant, astern bells in the left quadrant. On the RPM indicator on the pilothouse bulkhead, forward bells are indicated in the left quadrant, astern bells in the right quadrant. On all RPM indicators, the astern quadrant is colored red and the ahead quadrant is colored green. There are two clocks on the bridge that the third mate can refer to when making bell book entries, one on the bulkhead and a digital one on the console near the telegraph. There is a placard with the RPMs and speeds associated with each bell posted in the vicinity of the telegraph.

6. Telegraph Operation and Alarms

Though it is possible for the bridge to directly control the engine, in actual practice the ship always operates in engine room control mode – that is, the engineers always directly control the engine. Engine orders are transmitted from the bridge to the engineering control room by a telegraph system. The telegraph in the engineering control room has two arrows, one controlled by the bridge, one controlled by the engineering watchstanders, that lie one on top of another. When a bridge watchstander receives an engine command, he indicates this command to the engineering watchstander by dialing in the appropriate command on the bridge telegraph. Whenever a new engine command is indicated on the bridge telegraph, a buzzer sounds and a light that corresponds to the ordered engine position flashes on both the bridge and the engine

control room telegraphs. In addition, the bottom arrow on the engineering telegraph moves to the position that corresponds to the ordered command, and an audible alarm located on the bulkhead above the engine control console sounds. The engineering watchstander acknowledges the command by rotating the top arrow on the engineering telegraph to match the desired order indicated by the bottom arrow (see page 9). Once the engineering watchstander correctly matches the two arrows on the telegraph, the audible telegraph alarms extinguish and the light indicating the ordered engine command stops blinking (though it does stay on). If the engineering watchstander fails to correctly match the two arrows, the audible telegraph alarms continue to sound, the light indicating the ordered command continues to blink, and a light in the lower right hand corner of the engineering telegraph comes on and stays illuminated. On both the bridge and the engineering telegraphs, the "engine stop" position is in the top center of the telegraph. The telegraph knob on the bridge is rotated clockwise to indicate ahead, counter-clockwise to indicate astern. The telegraph knob in the engine control room is rotated clockwise to indicate astern, counter-clockwise to indicate ahead.

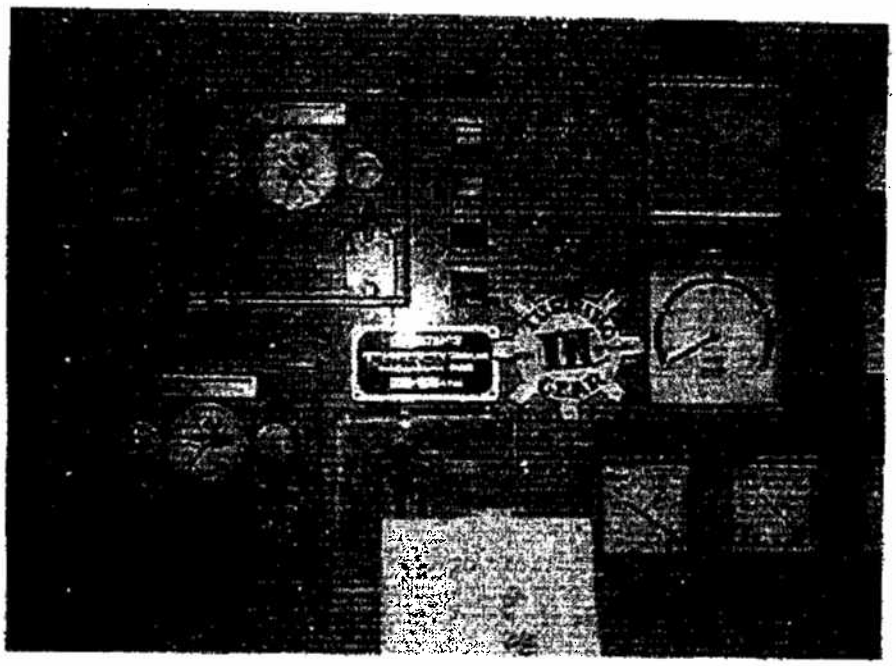
Photograph of Bridge Control Console



Photographs of Engineering Control Console

Lower View

Upper View



7. Engine Control and Alarms

The engineer's response on the telegraph does not control the engine – it merely indicates to the bridge that the engineers have received and acknowledged the command. In order to actually cause the engine to respond to the command relayed on the telegraph, the engineers need to stop/start the engine, if necessary, and then turn a second dial (the engine control dial) located to the right of the telegraph to the requested engine command. The engine control dial does not actually start the engine; the engine is started and stopped by a separate button. The engine control dial has a black knob with a concentric circle around it, half green and half red, with the green half on the left corresponding to ahead and the red half to the right corresponding to astern. If the engine is at stop, turning the dial will shift the camshaft in the right direction and then, once the engine has been started, will bring RPMs up to the ordered speed. If the engine/shaft is operating in one direction (astern, for example), and the bridge orders an ahead command, turning the dial in the ahead direction will automatically shift the camshaft. The further the engine control dial is turned from the center position the greater the engine RPMs.

There would be no alarm if there was a mismatch between ordered and actual RPMs, as long as the direction of engine rotation matched the direction ordered on the telegraph (both ahead, for example).

8. Wrong Rotation Alarm

There is a main engine wrong rotation alarm that sounds in the engine control room if there is a mismatch between the direction of actual shaft rotation and the direction ordered on the engine telegraph. Two lights illuminate on the engineering control console with this alarm – the lower right hand light on the telegraph, and the bottom of four alarm buttons in the row just above and to the left of the turning gear status indicator. In addition, an extremely loud audible alarm that resembles an English police siren sounds in the engine control room. There is no interlock to prevent an engine-telegraph mismatch. If the engineering watchstanders fail to match the ordered command on both the telegraph and on the engine control dial, both the telegraph and the engine wrong direction alarm bells would go off and the alarm lights would illuminate.

9. Bell and Course Recording

The HYDE PARK does not have any automated bell or course recording equipment; nor are alarms automatically recorded. In a maneuvering situation, the third mate is responsible for logging engine and rudder commands in the bridge bell book. Similarly, an engineering watchstander (the electrician in maneuvering situations) is responsible for logging engine commands that are received via the telegraph in the engineering bell book.

10. HYDE PARK's Personnel and Qualifications

On 26 February, the HYDE PARK had a mixed-nationality crew of 34. English is the common language aboard the HYDE PARK. The crew reports communications to be generally satisfactory.

Master.

Captain [redacted] was the master of the HYDE PARK. He has been a master since 1989, and has been sailing since 1966. His current Liberian masters license was issued on 6 May 97 and was due to expire on 31 Jan 2002. He has been aboard the HYDE PARK twice – once for 45 days in 1987, and since August 1998 at the time of the 26 February casualty.

Third Officer.

Mr. [redacted] had been aboard the HYDE PARK for about five months, since October of 1998, and he had served as the third officer for seven weeks prior to the 26 February incident. He has sailed for a total of approximately nine years, and was aboard the HYDE PARK once before, from October 1997 until approximately June 1998. In his prior rotation aboard the HYDE PARK, he served as an able-bodied seaman. He had never served as a third officer on other ships before the HYDE PARK. He was issued a third mates license by the Republic of the Philippines on 13 August 1993, and by the Republic of Liberia on 26 February 1999 (based upon receipt of an application).

Helmsman.

Mr. [redacted] was a helmsman aboard the HYDE PARK. This was the first time he had held this position aboard a ship. He had been aboard the HYDE PARK for about nine months at the time of the 26 February incident. He was issued a deck watchkeeper certificate by the Republic of the Philippines on 26 March 1998, which was due to expire on 31 January 2002.

Chief Engineer.

Mr. [redacted] had been a chief engineer for seven years at the time of the 26 February incident, and he had been the HYDE PARK's chief engineer for the seven months preceding the incident. He has seventeen years seagoing experience. This was his first time aboard the HYDE PARK. He has served on approximately 10 ships as chief engineer. His Liberian chief engineers license was issued on 7 August 1997 and was due to expire on 31 January 2002.

First Engineer.

Mr. [redacted] had been the first engineer aboard the HYDE PARK since 24 November 1998. He has sailed for 15 years, and received a Romanian first engineer officer's license in 1994. His job is to oversee the accomplishment of maintenance on machinery in the engineroom, and to supervise the workers in the engineering department. His Liberian first assistant engineer license was issued on 27 January 1999, and was due to expire on 31 January 2002.

Electrician.

Mr [redacted] was an electrician aboard the HYDE PARK at the time of the incident. He has twenty years experience at sea, all as an electrician. He had continuously been aboard the HYDE PARK since 9 October 1998. His Liberian third assistant engineers license was issued on 1 December 1998, and was due to expire on 31 January 2002.

11. Other relevant personnel

Captain [redacted] was the river pilot aboard the HYDE PARK when she had the cooling system irregularity that caused her to go to anchor above Quarantine Anchorage on 26 February. Captain [redacted] remained aboard until Captain [redacted] (see paragraph below) relieved him at approximately 2200[4]. Captain [redacted] has been a pilot with New Orleans - Baton Rouge Steamship Pilots Association since 1 April 1996. He is officially designated as NOBRA [redacted]. Prior to joining NOBRA, he served as a captain aboard various casino boats operated by New Orleans Paddle Wheels. He has had over 20 years experience on the water, all on the LMR.

Captain [redacted] was the river pilot aboard the HYDE PARK when the casualty that is the subject of this investigation occurred. Captain [redacted] had been a pilot with the Crescent River Port Pilots Association for 19 years at the time of the hearing, and is designated as Crescent [redacted]. Since joining Crescent Pilots, he has piloted over 6,200 ships. Prior to joining Crescent, he had 4 to 5 years of experience on tugs on the LMR, two or so of those years as a captain. He has turned ships around in the vicinity of this casualty both as a tug captain and as a pilot. He has no record of marine casualty involvement in MSIS.

Mr. [redacted], a senior surveyor with expertise in electrical systems employed by Lloyd's Register since 1991, was in the HYDE PARK's engineering spaces at the time of the casualty that is the subject of this investigation. He had been directed to board the HYDE PARK on behalf of Lloyd's Register to verify the repairs the ship's company had made to the cooling system after the ship experienced a loss of cooling water pressure which required her to anchor at approximately 1841 on 26 February 1999. Mr. [redacted] is qualified as an electrical engineer, and has a degree in electronic engineering from Newcastle University in England. He has worked as a marine acoustics engineer on government research ships; as a test engineer in a computer company; and as a chief engineer in charge of design development in an electronics company.

CWO4 [redacted] was sent aboard the HYDE PARK in the week following the casualty as a Coast Guard engineering expert to familiarize himself with the ship's engineering plant and in particular the cooling system that had experienced a problem earlier in the evening of 26 February. CWO4 [redacted] had been in the Coast Guard for 27 ½ years at the time of the hearing, the last nine years of which he was a marine inspector. CWO4 [redacted] was qualified as both a machinery and a hull inspector. His entire Coast Guard career was engineering-related, including tours as Engineering Officer and Main Propulsion Chief on Coast Guard cutters.

B. MIRIAM WALMSLEY COOPER (COOPER) – ASSIST TUG ON 26 FEBRUARY

12. Tabulated Data

Name	MIRIAM WALMSLEY COOPER
Official Number	D276928

[4] Three different state pilot associations provide pilots to assist vessels transiting the LMR. Associated Branch Pilots operate from the mouth of the Mississippi River via South Pass or Southwest Pass to Pilottown (mile 1.9 AHOP); Crescent River Port Pilots Association pilots operate from Pilottown to just below the Huey P. Long Bridge (mile 104.5 AHOP), and New Orleans – Baton Rouge Steamship Pilots Association pilots operate between miles 90.5 and 233, AHOP. Pilots from different associations will relieve each other as a vessel transits from one zone to another.

Service	Towboat/Tugboat
Gross Tons	213
Length	97.3 ft
Breadth	25.6 ft
Draft	11.1 ft
Propulsion	2 EMD 567-C diesel engines
Horsepower	4000 horsepower
Number shafts	2
Flag	United States
Owner	Crescent Towing Co., Inc.
Build Year	1958

13. Operator on 26 February 1999

On the evening of 26 February, Captain [redacted] was the captain of the COOPER. Captain [redacted] had been with Crescent Towing for almost twenty-four years, all of them as a captain, at the time of the 26 February incident. He has held a captains license since 1973. Most of his experience has been on the LMR, in New Orleans harbor. He has been a captain aboard the COOPER since May 1998. His current license, serial number [redacted] (sixth issue), was issued by REC New Orleans on 12 April 1996, and was due to expire on 12 April 2001. This license authorizes Captain [redacted] to serve as master of steam or motor vessels of any gross tons upon rivers.

C. TERENCE J. SMITH (TERENCE) - ASSIST TUG ON 26 FEBRUARY

14. Tabulated Data

Name	TERENCE J. SMITH
Official Number	D595389
Service	Towboat/Tugboat
Gross Tons	199
Length	108 ft
Breadth	24.8 ft
Draft	11.2 ft
Propulsion	1 GE 7FDM16 diesel
Horsepower	4000 horsepower
Number shafts	1
Flag	United States
Owner	Crescent Towing Co., Inc.
Build Year	1943

15. Operator on 26 February 1999

On the evening of 26 February, Captain [redacted] was the captain of the TERENCE. Captain [redacted] has been with Crescent Towing for over twenty years, and has over twenty years seagoing experience, all on the LMR. He has held a captain's license since 1981. He has spent most of his seagoing career on the TERENCE. His current license, serial number [redacted] (fifth issue), was issued by REC New Orleans on 6 August 1996, and was due to expire on 6 August

2001. This license authorizes Captain [redacted] to serve as master of inland steam or motor vessels of any gross tons.

D. HERMAN POTT (POTT) – TOWING VESSEL WHOSE TOW WAS STRUCK BY THE HYDE PARK

16. Tabulated Data

Name	HERMAN POTT
Official Number	D545079
Service	Towboat/Tugboat
Gross Tons	635
Length	155.5 ft
Breadth	40 ft
Draft	9 ft
Propulsion	Two GM 16-645E5 diesels
Horsepower	5600 horsepower
Number shafts	2
Flag	United States
Owner	Midland Enterprises, Inc.
Build Year	1973

17. Operator and crew on 26 February 1999

[redacted], Captain of the POTT, was on watch in her pilothouse at the relevant times on 26 February 1999. Captain [redacted] has sailed as a Captain for Midland Enterprises for 28 years. He has worked on the LMR for approximately three years; most of his experience before then was on the Ohio River. He had only been aboard the HERMAN POTT since 18 February 1999. His current license, serial number [redacted] (sixth issue), was issued by REC Memphis on 30 September 1997 and is due to expire on 30 September 2002. This license authorizes Captain [redacted] to serve as an Operator of Uninspected Towing Vessels, as Master of Vessels less than 1600 gross tons on Western Rivers, and as a First Class Pilot.

The deckhands on watch were [redacted] and [redacted]. The pilot, [redacted], and two other deckhands were below.

E. HERMAN POTT'S TOW ON 26 FEBRUARY 1999

18. General discussion

At the time of the 26 February incident, the POTT had a tow consisting of 12 barges. Refer to page 4 for the tow configuration. Particulars for the two barges most severely damaged in this incident are provided below.

19. F/B MEM 92114 – Tabulated Data

Name	MEM 92114
Official Number	D987221
Service	Freight Barge

Gross Tons	764
Length	200 ft
Breadth	35 ft
Draft	13 ft
Flag	United States
Owner	MEMCO Barge Line Inc.
Cargo on 26 February 1999	Calcinated Coke

20. MEM 94174 – Tabulated Data

Name	MEM 94174
Official Number	D1024653
Service	Freight Barge
Gross Tons	764
Length	200 ft
Breadth	35 ft
Draft	13 ft
Flag	United States
Owner	MEMCO Barge Line Inc.
Cargo on 26 February 1999	Calcinated Coke

G. MISS LESLIE – CREW BOAT STRUCK BY HYDE PARK

21. Tabulated Data

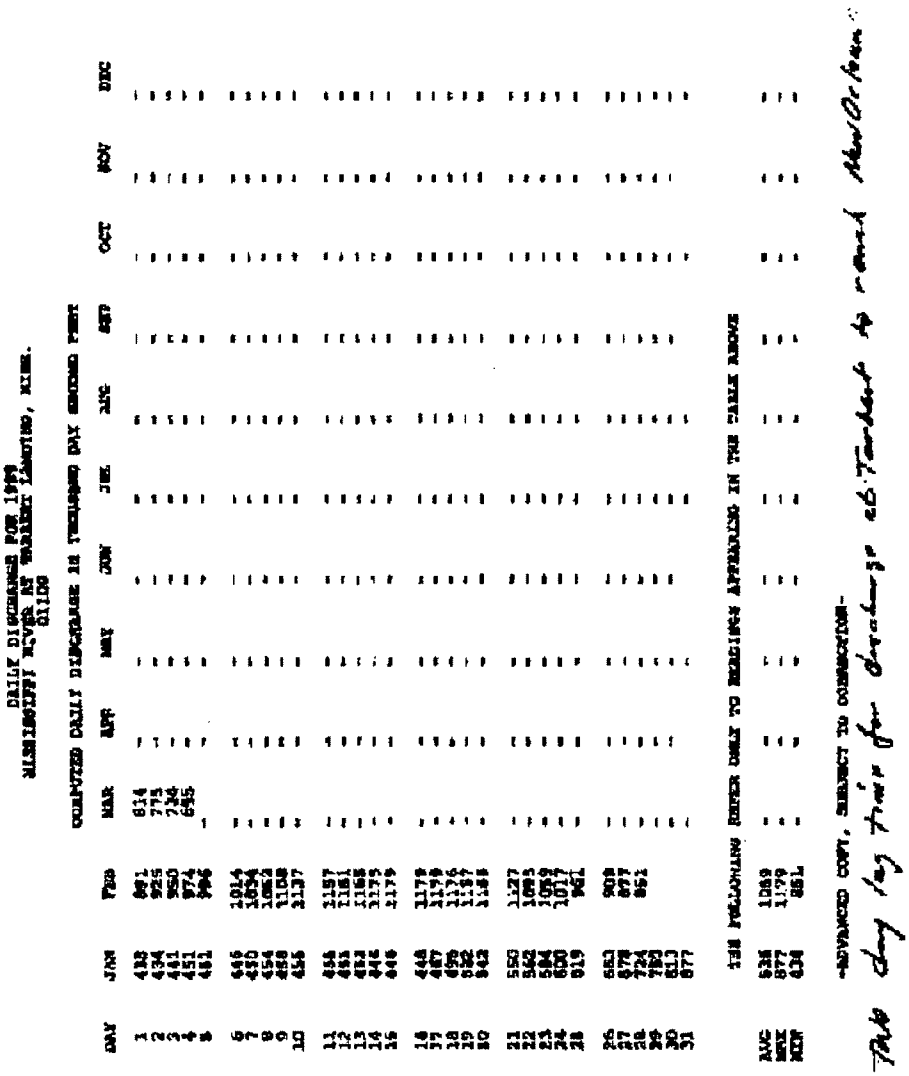
Name	MISS LESLIE
Lloyd's Number	D642429
Service	Passenger
Gross Tons	26
Length	45 ft
Breadth	15 ft
Draft	3 ft
Propulsion	Diesel Reduction
Horsepower	600 horsepower
Flag	United States
Owner	Port Ship Services, Inc.
Build Year	1982

III. WEATHER, CURRENT, AND OTHER ENVIRONMENTAL FACTORS

22. The weather was clear, winds were negligible, and the visibility was good on the evening of 26 February 1999. The Carrolton river gage on 26 February 1999 in the vicinity of mile 91.5 was 13.0, which means that the Mississippi River was 13.0 feet above sea level at that point. The Mississippi River in the vicinity of New Orleans is considered to be in a high water state when it reaches 8 feet on a rising stage and 9 feet on a falling stage. Mariners involved in the 26 February casualty report that the current in the vicinity of mile 91.5 was at least 3 ½ to 4 knots, quite possibly more. This estimate is quite close to the mean river velocity of 4.2 miles per hour observed in the vicinity of New Orleans between 1973 and 1989 when the river gage was at 13

feet. At 13 feet, approximately 1,000,000 cubic feet per second of water is passing any particular spot on the bank of the Mississippi River in the vicinity of New Orleans. Participants' opinions differ as to whether the current remained essentially steady from bank to bank or whether it varied at different points across the river. A river velocity profile conducted by the Army Corps of Engineers in the approximate area where the incident occurred indicates that the current remains fairly constant across the river except when within a few hundred feet of either bank, at which point the current somewhat diminishes (see following illustrations). It should be noted that this survey was not performed until March 6, 1999, at which point the river gage had dropped from 13.0 feet to 9.5. Such a drop in the river gage would decrease the river velocity approximately 1 mile per hour from what would have been experienced on 26 February (see following illustrations). Other than the decrease in velocity, it is unclear how the other results obtained in the river profile were affected by the decreased river stage.

Mississippi River Daily Discharge (Thousands of Gallons Per Minute)



JAN 1991

RIVER VELOCITIES AT NEW ORLEANS, LA.
(MILE 102.6 AHP**)

Related to the New Orleans (Carrollton) Gage

Based on observations from 1973-1989 at the New Orleans and Belle Chasse discharge ranges.

GAGE HEIGHT IN FEET NGVD* (88 ADJ)	VELOCITY MEAN AT 60% DEPTH FT/SEC	MEAN AT 60% DEPTH MI/HR	MEAN AT SURFACE FT/SEC	MEAN AT SURFACE MI/HR	MAXIMUM AT 60% DEPTH FT/SEC	MAXIMUM AT 60% DEPTH MI/HR	MAXIMUM AT SURFACE FT/SEC	MAXIMUM AT SURFACE MI/HR
1	0.8	0.5	0.9	0.6	1.0	0.7	1.1	0.8
2	1.5	1.0	1.7	1.2	1.8	1.2	2.0	1.4
3	2.0	1.4	2.3	1.6	2.6	1.8	2.9	2.0
4	2.4	1.6	2.7	1.8	3.1	2.1	3.5	2.4
5	2.8	1.9	3.2	2.2	3.7	2.5	4.2	2.9
6	3.1	2.1	3.5	2.4	4.2	2.9	4.8	3.3
7	3.4	2.3	3.8	2.6	4.7	3.2	5.3	3.6
8	3.7	2.5	4.2	2.8	5.1	3.5	5.8	4.0
9	4.0	2.7	4.5	3.1	5.5	3.8	6.2	4.2
10	4.3	2.9	4.9	3.3	5.9	4.0	6.7	4.6
11	4.7	3.2	5.3	3.6	6.3	4.3	7.1	4.8
12	5.1	3.5	5.8	4.0	6.7	4.6	7.6	5.2
13	5.4	3.7	6.1	4.2	7.1	4.8	8.0	5.5
14	5.8	4.0	6.6	4.5	7.5	5.1	8.5	5.8
15	6.2	4.2	7.0	4.8	8.1	5.5	9.2	6.3
16	6.7	4.6	7.6	5.2	8.7	5.9	9.8	6.7
17	7.3	5.0	8.2	5.6	9.5	6.5	10.7	7.3
18	7.8	5.3	8.8	6.0	10.3	7.0	11.6	7.9

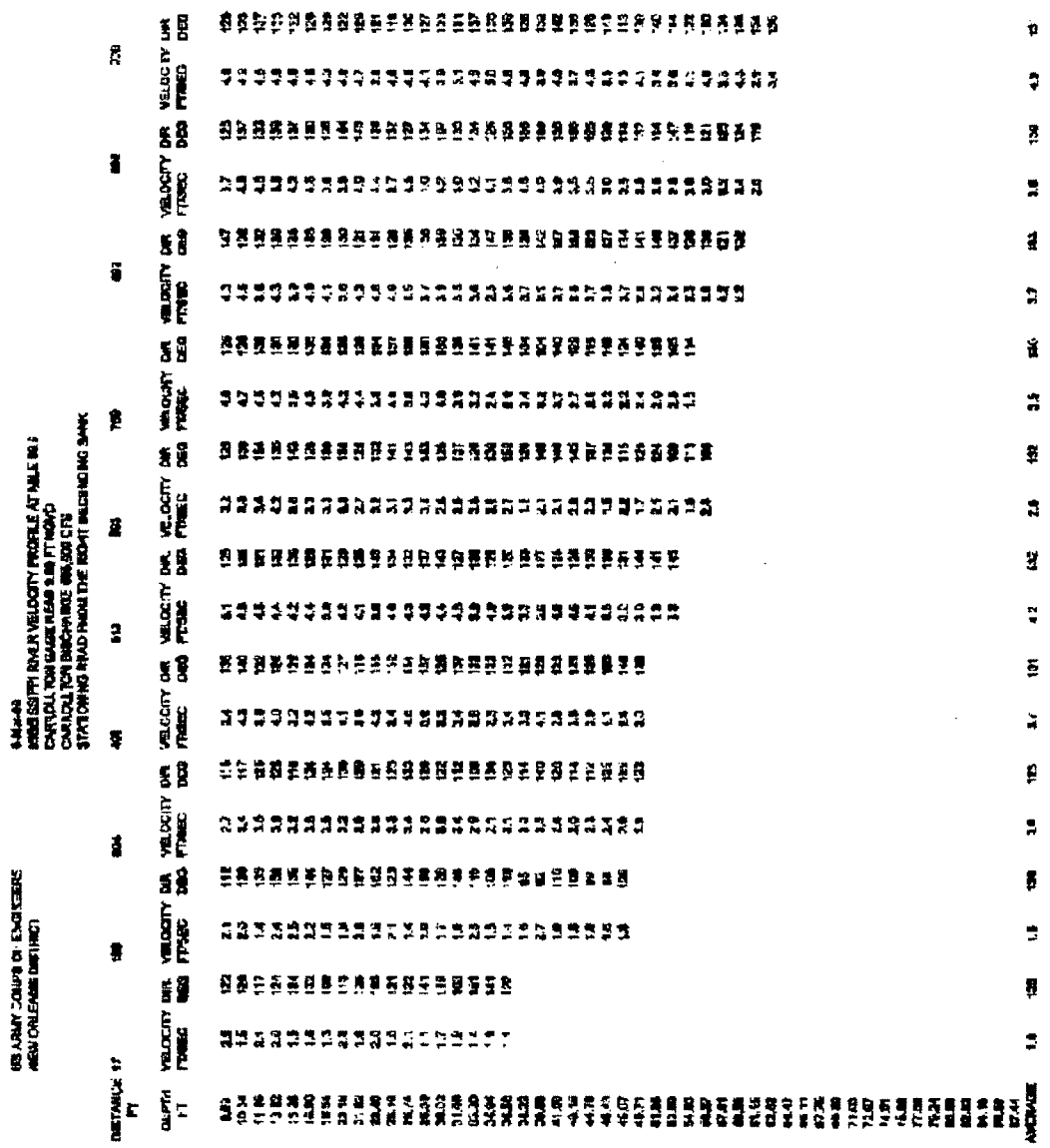
* - NATIONAL GEODETIC VERTICAL DATUM (1988 ADJUSTMENT)
** - ABOVE HEAD OF PASSES

MILES PER HOUR = 0.682 X FT/SEC
KNOTS PER HOUR = 0.592 X FT/SEC

MILES PER HOUR = 1.152 X KNOTS
KNOTS PER HOUR = 0.868 X MI/HR

Stage on 26th Feb 1999
Carrollton Gage 13.4ft
& discharge 1,000,000 Cfs

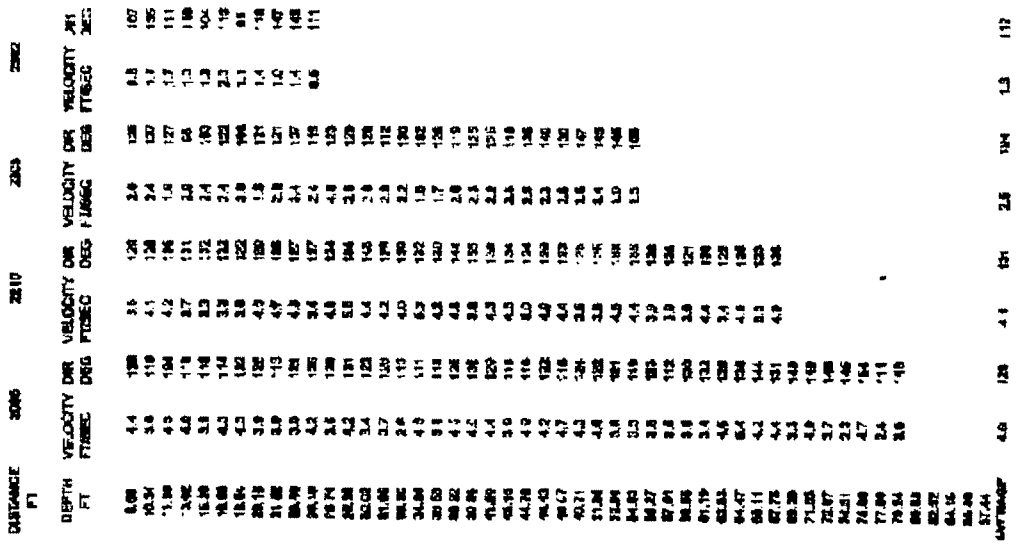
Mississippi River Velocity Profile at Mile 90.9, Performed 6 March 1999



Velocity Profile (con't)

DISTANCE FT	1104		1213		1302		310		1508		1614		1682		1798		1980		1360	
DEPTH FT	VELOCITY FT/SEC	DIR DEG	VELOCITY FT/SEC	DIR DEG	VELOCITY FT/SEC	DIR DEG	VELOCITY FT/SEC	DIR DEG	VELOCITY FT/SEC	DIR DEG	VELOCITY FT/SEC	DIR DEG	VELOCITY FT/SEC	DIR DEG	VELOCITY FT/SEC	DIR DEG	VELOCITY FT/SEC	DIR DEG	VELOCITY FT/SEC	DIR DEG
8.70	4.6	118	4.8	129	4.8	133	4.8	128	4.2	115	4.9	130	5.2	128	4.7	120	4.3	121	4.5	137
10.34	4.3	122	4.9	130	3.7	127	4.1	119	4.8	114	4.7	133	4.4	124	4.2	138	4.1	127	5.0	138
11.98	4.8	121	4.3	131	4.8	132	5.8	119	4.5	118	4.9	124	4.7	126	3.8	134	3.9	122	4.9	128
13.62	4.9	129	4.8	135	4.7	119	4.4	139	4.7	108	5.5	130	4.8	129	4.4	134	4.8	124	4.4	128
15.26	5.4	128	4.7	127	4.4	125	4.8	148	4.2	117	5.1	123	5.4	129	4.8	124	3.7	120	4.2	121
16.90	4.7	127	4.9	140	4.2	132	4.7	128	3.9	118	5.2	128	4.8	124	4.1	117	4.8	125	4.4	128
18.54	4.5	132	3.5	127	4.6	141	4.7	127	4.0	121	5.6	127	4.4	137	3.9	128	3.7	128	4.4	138
20.18	4.0	128	3.6	128	3.4	143	4.6	122	4.1	120	5.3	128	4.2	128	4.8	118	3.8	122	4.4	131
21.82	3.7	128	3.9	123	3.8	139	5.0	131	4.8	125	5.8	130	4.9	128	3.7	135	3.4	127	4.7	128
23.46	4.0	127	3.9	123	4.4	139	4.4	122	4.6	113	4.7	128	4.9	128	3.8	116	5.0	123	4.8	126
25.10	4.8	129	3.2	129	4.7	138	4.0	122	4.0	112	4.9	132	4.6	108	4.2	133	5.3	115	4.4	132
26.74	4.7	138	3.7	129	4.4	122	4.3	126	4.2	123	4.8	130	4.8	122	3.7	110	4.8	120	4.1	132
28.38	5.5	130	4.1	142	3.9	131	4.4	120	4.7	117	4.8	135	4.8	137	3.7	113	4.8	129	4.8	132
30.02	4.8	138	3.7	125	4.1	140	4.8	125	4.7	112	5.0	133	4.4	131	3.7	117	4.6	130	4.3	122
31.66	4.4	134	4.0	115	3.4	131	4.8	127	4.4	111	4.5	130	4.9	122	4.8	122	4.7	138	5.8	130
33.30	4.3	136	2.9	129	3.6	144	4.8	137	4.4	116	4.6	128	4.5	126	4.8	118	4.1	137	4.8	128
34.94	3.8	130	3.7	125	3.6	138	4.7	133	5.2	119	4.3	118	4.3	125	4.7	125	5.5	125	3.7	118
36.58	5.3	130	3.8	125	4.0	120	4.7	136	4.8	118	4.2	133	4.3	128	3.2	151	4.4	137	3.7	141
38.22	4.9	121	3.0	118	4.2	132	4.7	127	3.8	123	3.2	131	4.1	123	4.5	132	4.9	130	3.7	117
39.87	3.9	122	5.6	131	3.8	131	6.1	125	5.1	107	4.9	131	3.8	134	3.8	127	4.8	122	4.6	135
41.51	4.7	131	5.9	120	3.8	131	4.8	132	3.7	104	4.9	136	4.8	128	3.9	119	4.6	136	4.6	128
43.15	4.3	134	4.9	124	4.2	134	4.8	119	4.7	105	4.4	130	4.6	131	3.8	131	4.0	138	4.8	124
44.79	3.7	127	3.2	126	3.1	135	5.8	125	5.3	108	4.6	130	4.7	124	3.5	127	4.1	142	4.4	128
46.43	3.6	148	3.3	132	3.9	128	4.8	121	4.8	114	4.5	140	4.1	114	3.8	138	3.8	126	3.8	119
48.07	3.8	132	3.5	122	3.8	131	4.8	126	4.3	117	4.3	138	3.8	120	3.7	127	4.6	128	4.2	128
49.71	4.5	128	3.8	140	1.7	128	4.8	123	4.2	113	4.1	132	3.8	131	4.5	118	3.5	128	3.6	127
51.35	4.0	131	3.9	123	2.8	141	4.8	136	4.2	96	3.4	123	4.1	136	4.0	138	4.8	124	2.8	118
52.99	4.6	127	2.9	121	3.8	134	6.1	112	4.5	90	3.8	108	3.0	116	4.2	126	3.5	122	4.7	122
54.63	4.1	134	3.8	131	4.4	136	5.3	118	3.8	105	3.2	121	4.3	120	3.3	124	3.9	127	3.2	128
56.27	3.6	131	2.9	136	3.7	121	3.7	118	3.5	110	4.4	136	4.1	111	2.9	122	4.6	118	3.3	128
57.91	4.2	117	3.8	134	3.2	137	2.6	118	3.8	111	4.1	142	3.8	121	3.7	120	3.8	118	3.8	134
59.55	2.6	120	4.2	138	3.2	121	4.8	118	3.5	102	4.8	132	3.8	116	4.0	138	4.0	104	2.7	128
61.19	3.5	114	3.7	112	3.1	135	4.2	120	3.6	114	4.8	130	3.8	130	3.1	130	4.3	120	3.3	128
62.83	3.2	123	3.6	134	3.0	132	3.8	111	3.2	120	3.4	142	4.8	118	3.2	119	4.1	122	3.3	139
64.47					3.2	132	4.1	121	2.4	127	3.3	126	3.3	111	3.5	113	4.7	133	2.8	138
66.11					2.8	127	3.8	138	3.0	133	3.3	135	3.8	126	4.0	120	3.6	121	3.4	132
67.75							3.7	133	3.9	130	3.3	123	3.8	120	4.1	128	3.5	115	3.4	133
69.39							3.8	146	3.4	109	2.6	128	3.8	120	4.1	138	3.4	110	2.9	130
71.03									3.2	110	2.8	118	3.8	122	3.3	149	3.8	115	2.7	117
72.67									2.9	126	2.9	126	3.8	125	3.5	126	3.8	110	2.8	142
74.31									2.8	122	2.6	134	4.1	128	3.7	138	4.8	120	2.4	135
75.96									2.4	116	3.3	123	4.0	132	2.4	127	2.7	124	3.5	128
77.60											2.7	130	2.8	118	2.8	129	3.8	126	2.8	118
79.24													3.2	129	3.8	121	3.0	128	3.2	112
80.88															3.3	133	3.1	137	3.2	121
82.52																	2.4	133	2.8	118
84.16																			3.6	110
85.80																			2.7	91
87.44																				
AVERAGE	4.1	130	3.7	127	3.8	132	4.6	130	4.0	115	4.2	128	4.2	124	3.8	128	4.2	125	3.8	125

Velocity Profile (con't)



IV. CHRONOLOGY OF EVENTS

A. HYDE PARK'S ARRIVAL IN U.S. ON 24 FEBRUARY 1999 UNTIL TIME SHE WAS REQUIRED TO ANCHOR DUE TO COOLING SYSTEM CASUALTY AT APPROXIMATELY 1840 ON 26 FEBRUARY 1999

23. The HYDE PARK arrived at the mouth of the LMR on the morning of 25 February 1999. She was loaded with a cargo of 7870.731 metric tons of benzene concentrate and 17,081 metric tons of pyrolis gasoline. Her destination was Baton Rouge. Her last port of call before arriving in the United States was Tarragona, Spain. On 24 February, before she entered U.S. waters, the HYDE PARK satisfactorily performed all pre-arrival checks required by 33 CFR Part 164.

24. At 0948 on 25 February Bar pilot [redacted] (Bar [redacted]) came aboard, and the HYDE PARK began her upriver transit. The engineering plant was in maneuvering mode during the upriver transit. A new pilot, [redacted] (Crescent [redacted]), relieved Captain [redacted] at approximately 1215 on 25 February. The HYDE PARK was underway the entire time between 0948 and the time she anchored in Twelve Mile Anchorage at 1929 on 25 February. She experienced no problems or difficulties during this portion of the upriver transit. While at Twelve Mile Anchorage she took on oil and bunkers.

25. On either 24 February or 25 February, the HYDE PARK's starboard radar began losing targets. Captain [redacted] did not inform the Coast Guard of this problem before the ship entered the LMR. On the morning of 26 February, while the ship was still anchored at Twelve Mile Anchorage, a radar technician visited the ship to examine the malfunctioning radar. The repairman did not bring the spare part with him that was necessary to fix the radar, and so he left without fixing it. He was supposed to come back later on 26 February to complete the repair, but he had not shown up by the time the ship departed Twelve Mile Anchorage at 1639 on 26 February.

26. Captain [redacted] (Crescent [redacted]) got the ship underway from Twelve Mile Anchorage at 1639 on 26 February. No tugs assisted the ship in getting underway. Before getting underway, the ship's personnel again satisfactorily completed the pre-underway requirements of 33 CFR Part 164. Captain [redacted] (NOBRA [redacted]) relieved Captain [redacted] as pilot at 1820 on 26 February while the ship was at the lower end of General Anchorage, between miles 89 and 90, in the vicinity of Chalmette Slip. The ship experienced no problems between Twelve Mile Anchorage and the time Captain [redacted] came aboard. Captain [redacted] got a verbal turnover from Captain [redacted], and he also got a pilot card and a copy of the ship's particulars. He also discussed maneuvering characteristics of the ship with Captain [redacted]. Other than when he began maneuvering to anchor at approximately 1840, Captain [redacted] kept the HYDE PARK at slow ahead the entire time that he was aboard. The vessel was scheduled to go to White Castle Anchorage, at mile 191. Captain [redacted] planned to take her the entire way there, as long as the upriver transit progressed smoothly.

27. Soon after arriving aboard, Captain [redacted] discovered that the starboard radar was inoperative after he asked for it to be turned on and it could not be. Captain [redacted] had not been informed of this casualty by the departing pilot or by Captain [redacted]. Captain [redacted] immediately informed MSO New Orleans of the casualty to the radar. Since visibility was good and the ship had another operable radar, MSO New Orleans gave the ship permission to continue upriver.

28. At approximately 1830 on 26 February, the chief engineer noticed a loss of fresh water cooling water pressure on the pressure gauge in the engine control room. There was no corresponding alarm on the engineering control console. The fresh water cooling system is a common system between the ship service generator, the main engine intercooler for the turbocharger, and any auxiliary machinery in the engineroom that needs cooling. The fresh water is cooled by sea water. The chief engineer called the captain, informed him of the casualty, and asked for the ship to slow down. This was the first problem with the cooling system that Captain [redacted] experienced while aboard the HYDE PARK. The engineers tried to maintain water pressure by placing two or three hoses into the expansion tank, but even that could not maintain the cooling water pressure. Once the ship had slowed down and they still could not find the leak, the chief engineer asked the captain to stop the ship. Captain [redacted] reported all of this to Captain [redacted].

29. Immediately upon receiving this report (at approximately 1835), Captain [redacted] ordered the engine stopped and began maneuvering to anchor. Captain [redacted] protested Captain [redacted] actions, telling him that they did not need to drop anchor immediately, that the situation was not critical, and that they had some time before they had to anchor. The ship was turning for 7 knots and making approximately 4-5 knots against the current at the time the engine was stopped. Captain [redacted] intention was to get as much way off the ship as possible with the engine stopped so he could maintain his alignment in the river. He reasoned that once he started backing, the torque of the prop would have a tendency to swing the bow to starboard, especially with the ship being in a loaded condition and facing a swift current. The HYDE PARK was at all stop for a few minutes, between 1835 and 1838. The HYDE PARK still maintained headway while at all stop; as a result, Captain [redacted] ordered half astern between 1838 and 1840. When the ship executed this command, her bow did in fact want to go starboard, fairly hard. Captain [redacted] was able to maintain her alignment with the assistance of two passing harbor tugs, the COOPER and the TERENCE, whose assistance he had requested. The ship stopped fairly quickly after the half astern command was executed. Captain [redacted] believes the ship traveled a maximum of 50 meters before all of her headway was taken off.

30. The ship answered all bells, including the astern bell, while maneuvering to go to anchor. She never lost power, RPMs, or any ability to maneuver or answer engine orders as a result of this casualty, but instead went to anchorage under her own power. Captain [redacted] did not notice any delay or sluggishness in the ship's response to his engine commands while maneuvering to anchor. Captain [redacted] felt shudders, vibrations, and other indications that the ship was responding to his astern command.

31. At 1840, Captain [redacted] ordered the engine to stop and ordered the starboard anchor to be dropped. The starboard anchor was dropped at 1841. The COOPER and the TERENCE were stationed on either side of the HYDE PARK's bow and helped push the ship closer to the bank after she dropped her starboard anchor. At 1846, she dropped her port anchor. The ship's position at anchor was approximately ¼ of the way across the river from the west bank, near mile 91.6-91.7, LMR, just above Quarantine Anchorage. Quarantine Anchorage extends from mile 90.9 to 91.6, LMR. She had three shots of chain on deck.

32. As a tanker carrying petroleum cargo, the HYDE PARK was prohibited from anchoring in Quarantine Anchorage. Once the ship anchored, Captain [redacted] immediately informed the Coast Guard of the casualty and of the fact that the ship's personnel estimated that temporary repairs to

the cooling system would take approximately two hours. With the exception of a brief interlude during which they left and then returned, the COOPER and the TERENCE remained with the HYDE PARK while she was anchored above Quarantine Anchorage.

B. TIME FROM HYDE PARK ANCHORING AT 1841 UNTIL CAPTAIN [redacted] ARRIVED ONBOARD AT APPROXIMATELY 2220

33. After the engine was stopped, engineering personnel began opening drains to determine where the leak was, and they found it on the main engine intercooler. The main engine inter cooler, otherwise known as the charge air cooler, cools main engine combustion air before it is sent to the engines. Cooling combustion air increases fuel efficiency of the engine by allowing more molecules of air into the engine than would be possible without cooling it. The leak was in the outboard of three sections, or passes, in the charge air cooler. A common intake and a common outlet manifold serves all three sections of the charge air cooler. Water was leaking into the air passageway, but it was not getting to the engine – it was being caught in a catch pan. The only effect of using combustion air that is not cooled on the main engine would be loss of fuel economy at sea speed. Even at sea speed, the loss of cooled combustion air would not affect the engine's ability to answer bells or its response time to commands from the bridge.

34. The ship's personnel temporarily repaired the problem by blanking off both the inlet and the outlet of the defective section of the charge air cooler, thereby isolating it. After that, the water leak stopped. Blanking off one of three sections of the charge air cooler would not hinder the engine's ability to respond to commands, either ahead or astern, nor would it decrease the engine's responsiveness or increased response time to commands. The temporary repair was completed within an hour of discovering the casualty (i.e. by approximately 1930). While the engineers were repairing the affected section of the air cooler, they engaged the turning gear to ensure no water intruded into the engine. They also did an air blow both ahead and astern to remove any water that might have gotten into the line. After the engineers blanked off the affected section, they disengaged the turning gear and satisfactorily tested the engine by running it both ahead and astern. They also monitored the cooling system parameters on the engine control console. Those parameters returned to normal once the temporary repairs were completed, and remained normal from that point through the time that the casualty that is the subject of this investigation occurred, both when the engine was operating and when it was not.

35. Once the temporary repair was completed, the chief engineer informed Captain [redacted] that the ship could get underway and answer all bells. Captain [redacted] relayed this information to Captain [redacted], who had remained aboard the ship after she anchored. Captain [redacted] had remained aboard because he felt the ship was a little bit above Quarantine Anchorage and, more importantly, because the ship was a tanker and he felt that was the safest thing for him to do. He was aware that loaded tankers are not permitted in Quarantine Anchorage.

36. While the temporary repairs were in progress, Captain [redacted] kept in contact with MSO New Orleans. The MSO watchstanders directed Captain [redacted] and the HYDE PARK's agent to move the ship with the assistance of tugs of adequate horsepower to the nearest anchorage once temporary repairs were complete. The Coast Guard also informed Captain [redacted] that the ship would be restricted to that anchorage until a classification society had come aboard and issued a report regarding the casualty and the repairs that had been made. Captain [redacted] conveyed this information to Captain [redacted]. Captain [redacted] through his dispatcher, discovered that none of the upriver deep draft anchorages – AMA at mile 116, Laplace at 146, Grandview at 147 – had

any availability. As a result, he asked his dispatcher to order a Crescent pilot to take the vessel to a downriver anchorage. The particular downriver anchorage the HYDE PARK would go to was neither Captain [redacted] concern nor responsibility.

37. At approximately 1915, Captain [redacted] was ordered by the Crescent dispatcher to shift the HYDE PARK from Quarantine Anchorage to either Nine Mile Anchorage (miles 82.7 to 85.0 AHOP) or Twelve Mile Anchorage (miles 78.6 to 80.8 AHOP), depending on the availability of space. During the conversation with his dispatcher, Captain [redacted] was informed that there had been some sort of trouble involving the ship's engineering plant. Captain [redacted] asked the dispatcher to find out if the ship would be under power or not, because that would affect his decision on the number of assist tugs he felt would be necessary to turn the ship in the river. The Crescent dispatcher apparently contacted Captain [redacted] aboard the HYDE PARK, who informed the dispatcher that the ship's personnel were reporting that the ship would be capable of full power once the repairs were complete. Based on this information, Captain [redacted] thought that two assist tugs would be sufficient – more than sufficient - to turn the HYDE PARK. If the ship would not have been under power, Captain [redacted] would have thought four or five tugs were necessary to turn the ship.

38. The ship's agent called Lloyd's Register Inspector [redacted] and asked him to board the ship at Quarantine Anchorage, prior to its movement downriver, and look at the repairs that were being carried out. Mr. Legg arrived aboard the HYDE PARK at approximately 2222, and almost immediately went down to the engineering spaces. Mr. Legg was in the engine control room for a substantial portion of the time between when the HYDE PARK got underway before the allision until the time she anchored after the allision; when he wasn't in the control room, he was in the engineroom proper.

39. At approximately 2000, [redacted], the third officer, assumed his 2000-2400 watch in the pilothouse. When he came on watch, the ship was anchored. Mr. [redacted] underway responsibilities as the deck watch officer were to operate the telegraph, log ordered bells, and oversee the helmsman, who stands 2-3 meters away and carries out rudder orders. Before executing a command on the telegraph, Mr. [redacted] states that he first repeats the order. He then executes the command on the telegraph, monitors the engine RPMs, and when the RPMs reach the ordered bell, he logs the command in the bell book. Finally, he reports back to the issuing officer that the engine is at the ordered bell. Mr. [redacted] testified that it is his own decision to write commands at the time they are carried out as opposed to when they are ordered. Mr. [redacted] testified that the third engineer synchronizes the bridge and engineering clocks every day. Mr. [redacted] did not recall if the engineering and bridge clocks were synchronized before getting underway on 26 February, though the First Engineer, Mr. [redacted], believes the clocks were synchronized that day. The off-going third mate informed Mr. [redacted] that the engine was ready to go. A pre-underway test had been conducted and documented on a pre-sailing checklist by the offgoing third mate and by engineering personnel.

40. At approximately 2100, the tug HERMAN POTT took up a position facing downriver near mile 92.0, just above the HYDE PARK, on the west bank of the LMR. The POTT was pushing fourteen loaded and two empty barges, and was intending to deliver six loads and both empties to the Elmwood Dockside facility on the west bank. The HYDE PARK was blocking the POTT's access to the Elmwood facility. The POTT maintained her position above the HYDE PARK by backing both of her engines. At some point after 2100, Captain [redacted] at Captain [redacted] request, called Captain [redacted] and informed him that his position and proximity to

the HYDE PARK was making Captain [redacted] nervous. In response to this call, Captain [redacted] informed Captain [redacted] that as soon as traffic cleared he would head across the river and do his barge delivery from the east bank.

41. Captain [redacted] moved the POTT across the river to the east bank near mile marker 91.5 sometime before 2150. With the assistance of some fleet boats, Captain [redacted] pushed into the east bank and held his position there, directly across the river from the Elmwood facility and approximately a thousand feet or so above the Port Ship Services facility on the east bank, without making up to the bank. His head was downriver, and his tow was parallel to the bank. The port string of barges was touching the river bank. The POTT began fleeting operations at approximately 2150. She had not done any fleeting work before crossing the river. POTT deckhands Dortch and Reed were stationed on the barges during the fleeting operation. Nobody aboard the HYDE PARK paid any further attention to the POTT after she started across the river. The POTT was stationary on the east bank and was well lit from the time she arrived there at approximately 2150 until the allision with the HYDE PARK occurred.

C. [redacted] ARRIVAL AT APPROXIMATELY 2220 UNTIL TIME OF CASUALTY AT APROXIMATELY 2252

42. Captain [redacted] arrived aboard the HYDE PARK at approximately 2220. He had a brief turnover with Captain [redacted], which he continued with Captain [redacted]. Captain [redacted] informed Captain [redacted] that the engineering casualty had something to do with the cooling system, that the problem area had been bypassed, and that the problem had been corrected. Captain [redacted] informed Captain [redacted] of the tugs that he had, introduced him to Captain [redacted], and left the ship several minutes after Captain [redacted] came aboard. He did not brief Captain [redacted] about the POTT's position. After Captain [redacted] left, Captain [redacted] told Captain [redacted] that the engine was fine, that repairs had been made, that the ship was ready to move, and that it could go anywhere he wanted at any speed he desired. Captain [redacted] discussed the impending turn with Captain [redacted], and also testified that he required the ship to test her engine dead slow ahead while he was aboard. Captain [redacted] testified that he didn't feel anything (vibrations, etc.) to indicate that the engine was being tested, but Captain [redacted] did report to him that the engine was fine. Captain [redacted] received a pilot card from the mate on watch, which he read. Captain [redacted] did not ask Captain [redacted] anything regarding the ship's particulars (which are posted in the bridge), the engine's response time to commands, nor the direction the ship backs. Captain [redacted] was informed of the status of the inoperative radar. Captain [redacted] did not know that the ship had a bow thruster. After his turnover was complete, Captain [redacted] asked Captain [redacted] if the ship was ready to heave anchors, and Captain Komar responded in the affirmative. Captain [redacted] testified that he had no communication problems with any of the HYDE PARK's crew.

43. The HYDE PARK's engineroom is always manned, even in open-ocean steaming, and was manned at all times while the vessel was underway on February 26. When the HYDE PARK got underway with Captain [redacted] aboard on February 26, the chief engineer, first engineer, and electrician were on watch in the engineering control room.

44. The chief engineer, [redacted] who was sitting at the engine control console, was responsible for acknowledging telegraph orders, starting and stopping the engine according to those orders, and turning the dial to control engine revolutions. The chief engineer testified that engineering watchstanders never adjust engine RPMs without an order from the bridge. The first

engineer, [redacted] was standing in the vicinity of the engine control console and was responsible for answering the telephone and monitoring various gauges on the control console. The electrician, [redacted] was responsible for controlling air supply to the main engine, controlling generator power, and writing entries in the engineering bell book. Mr. [redacted] was sitting to the chief engineer's right at the engine control console.

45. The ship began heaving anchors at around 2223. While the anchors were being raised, the TERENCE was made up to the port bow of the HYDE PARK, behind the forecastle, approximately 60 feet from the bow, with 1 1/8 inch wire. The COOPER was stationed by the starboard bow, though she was not made up to the ship. Captain [redacted] controlled the two assist tugs; Captain [redacted] never communicated with either tug captain. Captain [redacted] communicated with the tugs on channel 12 of his hand-held VHF, and had clear and continuous communications with them.

46. The port anchor was raised first. The ship's head came to port as the port anchor was being raised, and Captain [redacted] counteracted this by kicking the engine ahead dead slow at 2228 and ordering the rudder right between 10 and 20 degrees. The engine and rudder responded to the respective commands. The dead slow ahead command lasted approximately a minute, until 2229, and then the engine was stopped.[5] Mr. [redacted] logged the port anchor as being aweigh at 2234.

47. When the port anchor was aweigh, the ship began heaving up on the starboard anchor. As the starboard anchor was being heaved, the ship's head started to come around to starboard. To counteract this, Captain [redacted] ordered the rudder to port and the engine ahead dead slow. The ship was at dead slow from 2239 to 2243, and at 2243 she went to all stop. The starboard anchor was aweigh at 2244.

48. Captain [redacted] testified that he broadcast the fact that the HYDE PARK would be turning around (i.e. turning 180 degrees) to other vessels in the area, though this assertion was not corroborated by other vessels or entities in the area. Captain [redacted] never directly informed Captain [redacted] on the POTT or any of the fleet boats working with the POTT (the JUDY ALARIO, the COMPASS POINT, and the SANDY C) that the HYDE PARK was getting underway. Captain [redacted] was not aware that the POTT was involved in a fleeting operation, though he did notice that there were two lit tows on the east bank. Captain [redacted] did not feel that these vessels constituted a hazard to his maneuvers. There were no fleet boats working the POTT when the HYDE PARK got underway; all three of the fleet boats had already crossed or were in the process of crossing the river from the POTT to the Elmwood facility with barges from the POTT. Captain [redacted] was aware that there was a tug with either one or two barges making up to a fleet on the west bank as the HYDE PARK got underway, though these vessels did not impede the HYDE PARK's intended turn.

49. After he was informed that the starboard anchor was aweigh, Captain [redacted] instructed the COOPER to shift from the starboard bow to the starboard quarter. The COOPER took approximately 20-30 seconds to move from the starboard bow to the starboard quarter. While she was moving, the HYDE PARK was floating in the river with her engines stopped. Captain [redacted] testified that he instructed Captain [redacted] aboard the COOPER not to make up a line to

[5] Refer to FOF 103 for all commands issued during this underway period, as logged in both the bridge and the engineering bell books.

the HYDE PARK, since the COOPER is a twin screw vessel and can maneuver herself into position without a line. Captain [redacted] testified that he did not use a line because that would have prevented him from moving far enough astern to get to a position where he could exert maximum leverage. According to Captain [redacted], when turning a ship, it is very common for the tug on the stern not to use a line. The COOPER took up a position 70-80 feet forward of the stern, behind the starboard bridge wing. From where the COOPER was positioned, she could not be seen from either the port or the starboard bridge wing.

50. At approximately 2245, Captain [redacted] commanded first the COOPER, then the TERENCE, to push slow, straight in. Captain [redacted] and Captain [redacted] moved to the port bridge wing when Captain [redacted] gave the slow, straight in command. After the tugs began complying with Captain [redacted] command, the head of the HYDE PARK started swinging to starboard. The HYDE PARK's engine remained at stop as the starboard turn was being executed. Captain [redacted] testified that he did not like the fact that the ship's engine wasn't being used. The tugs pushed slow, straight in for a total of approximately 30-40 seconds. Captain [redacted] testified that the ship had some residual forward motion due to the four-minute period when the engine had been kicked ahead while the anchors were being raised, and so initially the turn went quite well.

51. When the ship was approximately ¼ of the way around, Captain [redacted] ordered both tugs to push hard, straight in. Once the tugs executed the hard, straight in command, the HYDE PARK's rate of turn increased. Captain [redacted] of the COOPER testified it was really the TERENCE's job on the bow to turn the ship to starboard; the COOPER's job on the stern was essentially to prevent the HYDE PARK from being swept downriver. The COOPER was not actually lifting the HYDE PARK's stern upriver, but was instead basically maintaining her position in the river. Captain [redacted] testified that he used fixed shoreline reference points to maintain his position in the river. Both tugs continued pushing hard, straight in until shortly before the HYDE PARK collided with the POTT's tow.

52. The ideal position for an assist tug in relation to a ship that is turning is at a right angle to the ship; at any angle less than 90 degrees, a tug will impart some headway to the ship as it is pushing. If a vessel has headway, it tends to drag a tug; if it has sternway, it tends to trip the tug around so that its bow faces the vessel's stem. The angle the tugs achieved relative to the HYDE PARK during her starboard turn is in some dispute. Captain [redacted] of the COOPER testified that he had achieved a 90 degree angle relative to the ship by the time the hard, straight in command was issued, and he remained at or near 90 degrees for the duration of the turn. Captain [redacted] testified that the TERENCE was at about a 45 degree angle to the ship at the time the hard, straight in command was given; being on the bow, the TERENCE needed higher RPMs in order to be able to kick her stern out to 90 degrees against the current. Captain [redacted] testified that within 45 seconds or so of executing the hard, straight in command, the TERENCE worked out to nearly a 90 degree angle and remained in that position until shortly before the allision. Captain [redacted] supports Captain [redacted] recollection. Captain [redacted] acknowledged, however, that at no time during the turn did the TERENCE actually achieve a 90 degree angle relative to the HYDE PARK; she got very close, but never actually made it. Captain [redacted], on the other hand, does not believe the TERENCE ever got close to 90 degrees; his recollection was that the TERENCE stayed at around 45 degrees relative to the ship during the entire attempt to turn the vessel.

53. Captain [redacted] and Captain [redacted] positions during the HYDE PARK's starboard turn are also in some dispute. Captain [redacted] testified that he remained on the port bridge wing during the entire evolution. Captain [redacted] testified that at approximately 2245, when the ship was 20-30 degrees into her starboard turn, he and the Captain [redacted] crossed over to the starboard bridge wing together. According to Captain [redacted], Captain [redacted] remained at the forward end of the bridge wing while he went aft of the house to monitor the position of the tug with barges that they had earlier noticed approaching a fleet on the west bank. Captain [redacted] further testified that while he and Captain [redacted] were on the starboard bridge wing together, he noticed that the HYDE PARK was being swept downriver, and made some comment to that effect to Captain [redacted].

54. At approximately 2250, Captain [redacted] ordered the ship's engine slow astern. Captain [redacted] did not issue any corresponding rudder commands. Captain [redacted] recalls that when he issued this order the ship was approximately broadside to the river, near mid-river. Captain [redacted], on the other hand, recalls that the ship had turned 135 degrees or so when this command was given. Captain [redacted] testified that he gave the slow astern command because he felt he had a small amount of headway and he wanted to take it off. Captain [redacted] also felt that the ship was being set very minimally down river. Captain [redacted] testified that the headway they had was from the current and from the tugs. A ship can use the tugs or her engine, either simultaneously or independently, to arrest her headway. Once a ship turning in the river turns broadside to the current and starts to head downriver, the current would have a tendency to push the ship toward the bank of the river in the direction of the turn.

55. Captain [redacted] testified that Captain [redacted] issued the slow astern order directly to the third officer as he (Captain [redacted]) was re-entering the pilothouse from the starboard bridge wing. Captain [redacted], who testified that he was still on the starboard bridge wing when the command was issued, believes he relayed the command by VHF as well. Captain [redacted] testified that after the ship had responded to the slow astern command, Captain [redacted] moved out onto the port bridge wing while he entered the bridge from the starboard bridge wing. Captain [redacted] on the other hand, recalled that he was still on the port bridge wing when he gave this order, and that Captain [redacted], who was on the port bridge wing with him, relayed the command into the pilothouse.

56. There was substantial dispute as to whether the slow astern command was ever carried out. Captain [redacted] testified that he did not hear any acknowledgement that the command had been carried out; did not feel the ship going astern; and did not see the ship's minimal headway decrease as it should have done once the engine started turning astern. However,Captain [redacted] was unable to verify whether the engine responded appropriately to this command because the bulb in the RPM indicator on the port bridge wing had burned out, and therefore the RPM indicator was not lit. Captain [redacted] and Mr. [redacted], on the other hand, both testified that Mr. [redacted] acknowledged the slow astern order and informed the pilot that the engine was slow astern. Both Captain [redacted] and Mr. [redacted] recall feeling the ship operating slow astern. Captain [redacted] testified that he noticed that the needle on the RPM indicator on the starboard bridge wing was in the red quadrant, indicating that the engine had responded to the slow astern command. Mr. [redacted] testified that he is certain that the engine turned for slow astern because the buzzer on the telegraph extinguished, which indicated that the engineers had received and correctly acknowledged the command.

57. At approximately 2251, when he realized the ship still had headway, Captain [redacted] ordered full astern. Though participants' recollections differed, it seems clear that the HYDE PARK at a minimum was in the center of the river, if not already on the east side of the river, and was at least broadside to the river, if not already past the half-way point of her turn. All participants seem to agree that Captain [redacted] was on the port bridge wing when he issued this command. Both Captain [redacted] and Mr. [redacted] testified that Captain [redacted] was in the pilothouse, monitoring RPMs along with Mr. [redacted] when the full astern command was issued.

58. Again, there is substantial dispute about whether the HYDE PARK ever responded to this full astern command. Captain [redacted] testified that he heard the third mate acknowledge the command in a full voice, and both Captain [redacted] and Mr. [redacted] testified that Mr. [redacted] reported compliance with the order once RPMs for full astern had been reached. Mr. [redacted] indicated in the bridge bell book that the ship was indicating RPMs for full astern at 2251. Both Captain [redacted] and Mr. [redacted] testified that the RPM indicator was in the proper (astern) quadrant of the RPM indicator once this order was carried out. Mr. [redacted] further testified that he knows the engineers carried out the full astern order because the buzzer on the telegraph extinguished and the RPMs increased. Mr. [redacted] testified that he felt a heavy vibration when the ship was at or above full astern – more than the vibration they would feel at a corresponding ahead command. Mr. [redacted] also testified that the ship's headway diminished between the time of the first astern command and the allision.

59. Captain [redacted] testified that he did not feel a response to the full astern command. Captain [redacted] testified that the ship was not vibrating, and the headway was not decreasing – in fact, it appeared to have been increasing. Captain [redacted] testified that the ship should have been at least dead in the water, possibly picking up sternway, with the full astern bell. Captain [redacted] testified that this lack of response caused him to ask Captain [redacted] if the ship's engine was working, and that in response Captain [redacted] who was on the port bridge wing with him, ducked back into the pilothouse, and then came back out and said, "It's OK." Captain [redacted] did not hear any alarms that may have indicated that there was some sort of engineering or other type of problem.

60. Within a minute of ordering full astern, either before or after Captain [redacted] reported the engine as being OK (it is not clear from his testimony), Captain [redacted] indicated to the ship's company that he wanted more astern power. His exact words are unclear: Captain [redacted] recalls ordering emergency full astern; Captain [redacted] testified that Captain [redacted] informed him, "It's not enough"; Mr. [redacted] recalled that the pilot asked for more revolutions; and Mr. [redacted] recalls the pilot asking for maximum full astern. However Captain [redacted] request was phrased, Captain [redacted] responded by calling down to the engine control room at approximately 2251 and telling the first engineer something to the effect of, "Give me everything you've got." Captain [redacted] testified that by asking for "everything you've got", he meant full astern at sea speed, which is above 110, maybe even up to 114, RPMs. Mr. [redacted] did not make any telegraph adjustments in response to the pilot's request for more revolutions; he did, however, write the words "EMY full astern" in the bell log right after logging the full astern command at 2251. EMY stood for emergency. The first engineer relayed the Captain's request to the chief engineer, and in response the chief engineer testified that he increased RPMs from 100 (full astern) to 107-108 RPMs.

61. As with the prior astern commands, there is substantial dispute about whether the ship responded to this engine command. The engineers testified that the ship was operating at or near

full astern at the time Captain [redacted] called down and requested more power. The chief engineer and Mr. [redacted] testified that it took approximately 5 seconds for RPMs to increase above 100. Mr. [redacted] recalls seeing the engine reach a maximum of 105 RPMs; Captain [redacted] recalls seeing the RPM indicator reach as high as 105 to 110 RPMs, possibly even 115 RPMs, in the astern quadrant of the tachometer; and Mr. [redacted] who was not constantly monitoring engine RPMs and load, observed the shaft rotating at 114 RPMs at some point while he was aboard, though he did not ascertain or recall in which direction the shaft was turning at the time. All of the ship's watchstanders testified at the hearing that the ship's vibrations increased after this command was executed, and the engineering watchstanders are certain that the vibrations were caused by the engine operating astern. The first engineer, Mr. [redacted] testified that he was a little upset at the strain the additional RPMs could put on the engine, and as a result closely watched the load indicator, which measures fuel supply to the engine. Mr. [redacted] testified that the load indicator reached close to 100% while the engine was operating in the heightened RPM condition (one minute or more). Mr. [redacted] who again was not constantly monitoring engine RPMs and load, observed the engine operating up to 75% of maximum dynamic load at some point while he was aboard the HYDE PARK on 26-27 February.

62. Captain [redacted] recalls that the bow of the HYDE PARK was approximately 300-400 feet from the POTT when he ordered emergency astern, and that this was the ordered command through the point of allision with the POTT's tow. Captain [redacted] testified that the HYDE PARK never responded to the emergency astern command; she never lost headway, and if anything, she actually picked up headway. Many witnesses report seeing no wash or smoke from the HYDE PARK at or immediately before the time of the allision, i.e. when she was supposed to be turning for something above full astern. Both tug captains testified that they did not feel any vibrations or cavitation at or near the time of the allision that they should have felt if the ship was backing. Captain [redacted] testified that he would have been able to feel such vibrations or cavitation, even though the TERENCE was pushing full ahead at the time of the allision.

63. Captain [redacted] testified that he could tell the HYDE PARK still had headway after he ordered emergency full astern, because the TERENCE was losing its 90 degree angle to the ship. Since a tug pushing at less than a 90 degree angle imparts headway to the ship, he ordered the TERENCE to stop. Stopping the TERENCE would have the effect of slowing the turn. The COOPER continued pushing straight in. After being stopped, the TERENCE laid back alongside the ship. Still the ship's headway did not diminish. This served as an indicator to Captain [redacted] that the TERENCE was not the source of the ship's headway. The tug captains recall that at the time of the stop command, the ship was approximately broadside in the river.

64. The first time Captain [redacted] aboard the POTT noticed the HYDE PARK underway, he recalls her being at approximately mile 91.8, broadside to the current, near the center of the channel. Captain [redacted] next noticed the HYDE PARK when she was approximately 400 feet from his tug and tow, at approximately a 45 degree angle to the east bank (i.e. 135 degrees, or ¾ of the way, around in her turn). Upon sighting her in this position, he sounded the danger signal, sounded the general alarm, and warned his deckhands of an imminent allision. Captain [redacted] recalls the interval between the time he sounded the general alarm and the time of the allision was fifteen to twenty seconds. Captain [redacted] did not try to go astern to avoid the allision, because there was a boat shoved into the bank right above him.

65. Captain [redacted] testified that at approximately 2253, after he verified that the ship had answered his request for more RPMs, he moved out onto the port bridge wing with Captain [redacted] Captain [redacted] recalls that at this point, the ship was still ¾ of the way around (i.e had turned 135 degrees from her original position), but she was much closer to – maybe within 30 meters of – the POTT and her barges on the east bank. From the bridge, the POTT's barges were covered by the HYDE PARK's forecastle. Captain [redacted] recalls that the TERRENCE was at a 45 degree angle relative to the ship; he did not see her come to a stop nor fall alongside the ship, though his attention was not focused on the tug.

66. At some point after ordering the TERENCE to stop, Captain [redacted] told the Captain [redacted] something to the effect of, "We're in trouble," because they were rapidly closing in on the POTT. Captain [redacted] replied something like, "We've got it made" or, "We're clear," but Captain [redacted] responded by saying something like, "We're in trouble" again. At the time of this conversation, the tug captains recall that the HYDE PARK was past broadside to the river, and was closer to the east bank.

67. When Captain [redacted] realized that a allision was going to occur, he ordered the TERENCE to push full ahead, straight in. The purpose of this maneuver was to bring the head of the HYDE PARK around so that she would hit the POTT's barges, not the POTT herself. This command was issued approximately 1 minute after the previous "stop" command to the TERENCE was given, and something less than a minute, maybe as little as 15-30 seconds, before the HYDE PARK collided with the POTT's tow. The TERENCE executed this full ahead command, though she never made it to perpendicular. Witnesses differ regarding how close the TERENCE came to perpendicular after executing this particular command: Captain [redacted] testified that the TERENCE only made it out to 45 degrees or so off the ship before the allision occurred, while Captain [redacted] recalls that the TERENCE had worked out to nearly 90 degrees. Either way, Captain [redacted] believes that this push by the TERENCE, which succeeded in preventing the HYDE PARK from plowing directly into the POTT, gave him some headway, since the tug did not have time to make it to the perpendicular.

68. The COOPER came to all stop immediately before the allision due to a concern that the HYDE PARK's stern would swing downriver after impact, possibly forcing the COOPER into the east bank. Captain [redacted] testified that he ordered the COOPER to stop; Captain [redacted] testified that he did so on his own initiative.

69. Captain [redacted] testified that he ordered the ship to drop her starboard anchor at around this point, though that order was not complied with. Captain [redacted] assumes that Captain [redacted] did not hear the command. Captain [redacted] intent in giving this order was to stop the ship. Neither Captain [redacted] nor Mr. [redacted] recalls Captain [redacted] attempting to drop the anchor before the allision. Captain [redacted] testified that he considered dropping the anchor, but decided that that would cause the ship's stern to swing around and wipe out everything for several hundred meters down river.

70. The allision with the POTT's tow occurred at approximately 2252-2253 at approximate mile marker 91.3. Mr. [redacted] testified that the HYDE PARK's RPMs had been above 100 RPMs for less than a minute before the allision occurred. The HYDE PARK's helm was amidships the entire time from getting underway until the allision with the POTT's tow. A number of participants and witnesses believe that the HYDE PARK sounded a danger signal shortly before the allision; other witnesses dispute this. Captain [redacted] testified that in response to the ship's

danger signal, he sounded the TERENCE's general alarm and sounded a danger signal himself. Both Captain [redacted] and Captain [redacted] were on the port bridge wing when the allision occurred.

D. TIME OF ALLISION UNTIL TIME ANCHORED

71. The POTT's tow at the time of impact was 3 barges long by 4 barges wide. Each barge was 35 feet wide, so the POTT's tow was sticking approximately 140 feet into the Mississippi River from the east bank. The river in the vicinity of mile 91.5 is approximately 2400 feet wide. The ship struck the POTT's tow with her bow at approximately a 45 degree angle. The HYDE PARK's point of impact with the POTT's tow was MEMCO 92114, the starboard stem barge. After hitting MEMCO 92114, the HYDE PARK swung into the TERENCE and hit her just above the amidships chocks. This impact caused the TERENCE to hit the starboard quarter of MEMCO 92114 and then become wedged between the HYDE PARK and the tow. Captain [redacted] testified that the TERENCE was still pushing full ahead, hard right at the time of impact. The impact caused the TERENCE to heel to port and the line between the tug and the ship to part. The COOPER was still alongside the HYDE PARK at the moment of impact, but was parallel to the ship as opposed to at a 90 degree angle – she had fallen alongside the ship when Captain [redacted] stopped his engines.

72. One barge, SUN 137, grounded on the levee with damage to her bottom. The rest of the POTT's barges broke free and went down the river. The first two barges of the starboard string, the MEM 92163 and the MEM 94174, ended up on the HYDE PARK's starboard side. Several fleet tugs, with searchlights on, went to retrieve the barges. POTT deckhands [redacted] and [redacted] went downriver on one of the barges. POTT deckhand [redacted] slightly injured his knee as a result of the allision, but did not miss any time from work. The POTT was not damaged as a result of the allision.

73. After his tow wire broke, Captain [redacted] stopped the TERENCE's engine (had it in clutch), which took off some of his port list. Captain [redacted] put the TERENCE's rudder hard right to keep his stern out and his house away from the HYDE PARK's gangway and to avoid falling under the ship's counter. When he realized that he was going to clear the ship's gangway and counter, Captain [redacted] put his engine astern to get clear more quickly. Once he worked free from between the ship and the barges, Captain [redacted] found himself astern and a little to starboard of the ship. Nobody aboard the TERENCE was injured. Damage to the tug consisted of bent bulwarks and some broken fender chains. After the TERENCE broke free, Captain [redacted] followed the HYDE PARK's progress downriver by the noise and commotion.

74. After the impact with the POTTs' tow, the HYDE PARK turned essentially parallel to the river and rapidly headed straight down river. At or soon after the time the allision occurred, Captain [redacted] stopped the HYDE PARK's engine. The ship is logged as being at "stop" at 2252, which to Captain [redacted] means that the engine was actually stopped at this point.

75. The stern of the HYDE PARK hit the Port Ship Services pier at mile marker 90.6, causing $44,000 in damages to the pier, and also hit the crew boat MISS LESLIE that was made up to the pier. Captain [redacted] testified that the HYDE PARK blew a second danger signal before the ship allided with the Port Ship Services facility. The MISS LESLIE, valued at approximately $250,000, was pinned between the ship and the pier and was rendered a total loss. The MISS LESLIE was turned upside down with her bow on the pier and the stern in the water. Drifting

barges hit the pier and caused the MISS LESLIE to fall into the water. Port Ship Services employees pulled the MISS LESLIE to shore so she would not sink.

76. At 2255, after the ship allided with the MISS LESLIE and the Port Ship Services dock, Captain [redacted] ordered the engine half ahead and the rudder hard starboard. Captain [redacted] testified that the ship responded appropriately to the half ahead engine command.

77. After the HYDE PARK allided with the MISS LESLIE and the Port Ship Services facility, her head swung out into the river until it was pointed 45 degrees away from the east bank. Captain [redacted] testified that he ordered the helm hard to port to swing her stern away from the Domino Sugar dock at mile 90.6, which the ship was fast approaching. Captain [redacted] testified that the reason he ordered the rudder hard to port was to swing the stern so it would miss the Domino Sugar facility. Mr. [redacted] also testified that it was Captain [redacted] who issued the hard port command.

78. Captain [redacted] and Mr. [redacted] both testified that it was Captain [redacted] not Captain [redacted] who actually ordered the rudder hard to port. Captain [redacted] testified that in doing so, he actually countermanded Captain [redacted] hard starboard command (discussed in Finding of Fact 76). Captain [redacted] testified that he is quite sure that Captain [redacted] heard him countermand the rudder order, because they were near each other and it was done in a full voice, but that Captain [redacted] did not question what he was doing or make any comment on Captain [redacted] action. Mr. [redacted] does not recall the pilot making any helm commands between the time they weighed anchor and the time the captain ordered hard port. Mr. [redacted] does not recall the captain countermanding any rudder orders.

79. Regardless of who ordered the helm hard to port, the rudder appeared to respond normally to that command. Nevertheless, the stern or port quarter of the ship hit some raw sugar barges tied up to the Domino Sugar dock, causing them to break free, and also some pilings at the downriver end of the dock. A couple of fleet boats rounded up the raw sugar barges, made them back up to the Domino Sugar dock, and then went to the assistance of some other fleet boats that were going after the loose barges from the POTT's tow. The fleet boats also pushed two barges from the POTT's tow (MEM 94174 and MEM 92114), against bumper pilings at the downriver end of the Domino Sugar dock, where MEM 92114 ended up sinking. The barges hitting the pilings, the HYDE PARK striking the pilings and barges tied to the dock, or a combination of both caused $260,000 worth of damage to the Domino Sugar dock.

80. At the same time as the disputed rudder command was issued, Captain [redacted] also ordered the engine full ahead. Captain [redacted] testified that the ship responded to the full ahead engine command. Captain [redacted] testified that he did not feel that the ship responded the way she should have at full ahead. With that bell, he would have expected her to move rapidly away from the east bank, and she did not.

81. After the ship hit the Domino Sugar facility, she appeared under full control and was able to move out into the channel below Chalmette Slip (mile 90.5). Captain [redacted] on the COOPER first saw wheel wash from the HYDE PARK around the time the ship was at the Domino Sugar facility. After the ship cleared the Domino Sugar facility, Captain [redacted] left the port bridge wing and went into the pilothouse. Captain [redacted] believes he rang up all stop after the ship hit the Domino Sugar facility, and then rang a series of ahead commands which he does not recall completely. The ship seemed to respond appropriately to those commands. When he

issued commands inside the pilothouse, the commands were repeated back to him. He does not recall if there was a follow-up report given once the ship had actually achieved the ordered RPMs.

82. Captain [redacted] called down to the engineroom at approximately 2300 and ordered the engineer to dispatch some personnel to check for damages. An engine " stop" command – probably the 2300 stop command logged in the bridge bell book, as opposed to the 2252 stop command - had been received and executed by the time of this call by the captain. In response, the chief engineer dispatched some engineroom personnel, including Mr. [redacted], to go around with flashlights and look for damage. The crew performed pressure tests of all cargo holds, and discovered an apparent fuel leak from the starboard side. The engineers immediately began transferring fuel out of the affected tank (the after starboard wing tank), and within several minutes they reported back to Captain [redacted] that the fuel leak had stopped.

83. Mr. [redacted] was gone from the control room for approximately 3 minutes. He made the 2300 entry (slow ahead) in the engineering bell log, but the first engineer made the 2303 entry (half ahead). The 2303 entry is the only one made in the engineering bell book that night that was not made by Mr. [redacted]

84. Four harbor tugs – the ASCENSION, ST. JOHN, TERENCE and COOPER came to the HYDE PARK's assistance after she moved away from the Domino Sugar facility. The TERENCE made up a line to the HYDE PARK's starboard bow. Captain [redacted] of the TERRENCE did not notice any wheel wash as he was moving from astern of the ship to her bow. Captain [redacted] on the COOPER crossed in front of the HYDE PARK and made up a line to the ship's port bow.

85. During the transit to Twelve Mile Anchorage, the assist tugs noticed oil leaking from under the counter of the starboard stern. The oil was leaking out of a hole in the aft starboard wing tank. A deckhand aboard the TERENCE SMITH stated that this hole was caused when the assist tug JUDY ALARIO, in the process of rounding up the POTT's barges which had floated free after the allision, pushed one or some of the barges into the HYDE PARK's starboard side. After ascertaining from Captain [redacted] that the ship's cargo was benzene and gasoline, Captain [redacted] decided to bypass Nine Mile Anchorage and head to Twelve Mile Anchorage, despite the incidents that had occurred. The assist tugs stayed with the ship until she anchored at Twelve Mile Anchorage at approximately 0025 on Saturday, 27 February.

86. All witnesses are in agreement that the ship experienced no engine responsiveness problems and no further incidents from the time control was regained after Domino Sugar until the ship safely anchored at Twelve Mile Anchorage. Captain [redacted] testified that he felt vibrations and saw stern wash when maneuvering at half and full astern at Twelve Mile Anchorage in preparation for anchoring.

87. Captain [redacted] and Captain [redacted] testified that they did not communicate regarding the possible cause of this incident. Mr. [redacted] recalls that after the allision, the pilot asked the captain if there was a problem with the engine. The captain replied that there was no problem with the engine. Captain [redacted] testified that Captain [redacted] never blamed the incident on a loss of power or an ahead response instead of an astern response. The relationship between Captain [redacted] and Captain [redacted] was at all times professional and civil.

88. Some time after the MIRIAM COOPER came back alongside, Captain [redacted] had a conversation with Captain [redacted] of the MIRIAM COOPER that went substantially as follows: Captain [redacted] asked Captain [redacted] something to the effect of, "What happened. She didn't back?" Captain [redacted] responded something to the effect of, "That's what I think, I didn't feel any indication. The Captain said she was backing." Captain [redacted] responded something to the effect of, "I didn't see any wheel wash." According to Captain [redacted], Captain [redacted] comments were not definite that the ship didn't back, but more to the effect of he didn't think the ship backed.

V. OTHER RELEVANT FACTS RELATING TO THIS INCIDENT.

Damage

89. As a result of the February 26 incident, the HYDE PARK suffered extensive damage to her forepeak tank. This damage consisted of a hole approximately a foot wide, and a cut about 8.5 meters long extending 12-14 meters from the starboard side that runs nearly to the allision bulkhead. There were also two punctures in the shell plating of the number nine port cargo wing tank, which was empty at the time of the allision. There was also a 3 ½ foot long horizontal split about three feet above the waterline in the aft starboard wing tank that was apparently caused by one or more of the POTT's barges that had broken free. This split resulted in the fuel oil spill associated with this casualty. Total repair costs for damage to the HYDE PARK were approximately $400,000.

90. Approximately eight metric tons of fuel oil spilled as a result of this accident. Total cleanup costs associated with this spill amounted to $1.7 million.

91. Other damage suffered as a result of this casualty includes:

Vessel or facility	Amount of damage
Port Ship Services dock	$44,000
MISS LESLIE (total loss)	$250,000
Domino Sugar dock	$260,000
SUN 137	$4,069.30
MEM 5088	$300
MEM 92107	$300
MEM 94161	$400
MEM 94175	$100
MEM 92163	$200
MEM 94184	$1,880

MEM 94174	$87,415.30
EFC 9680*	$6,395.00
MEM 92114	$283,170.35
Cargo salvage/scrap from MEM 92114 and MEM 94174	$719,208.93
Cargo disposal from EFC159*	$41,275.65
Miscellaneous costs	$21,257.35
Grand total other damage	$1,720,000
Grand total this casualty	$3,820,000

* Sugar barges not in the POTT's tow.

Wrong Rotation Alarm (previously discussed in FOF 8)

92. At some point between the time the HYDE PARK got underway from above Quarantine Anchorage at approximately 2230 and the time she anchored at Twelve Mile Anchorage at approximately 0025, she experienced a wrong rotation alarm. This alarm is very uncommon; engineering personnel who testified typically had only rarely, if ever, heard the alarm before except during testing. There is an issue as to when the alarm occurred. Mr. [redacted], Mr. [redacted] and Mr. [redacted] all testified that the wrong rotation alarm occurred as the HYDE PARK was going to anchor after the allision had occurred – sometime around midnight. The first engineer, Mr. [redacted], testified that this alarm did not sound before either of the two telephone calls from the bridge (one asking for more RPMs, the other dispatching personnel to look for damage), and that the alarm occurred approximately an hour after the captain called down at approximately 2251 asking for more RPMs. Mr. [redacted] recalls that the alarm resulted from the fact that the ship was operating ahead and they attempted to reverse too fast.

93. Though he testified that the alarm occurred some time around midnight, long after the allision occurred, the chief engineer had previously told CWO4 [redacted], a Coast Guard inspector, that the alarm had occurred at around 2258. Several days after the 26 February incident, while CWO4 [redacted] was aboard the HYDE PARK copying bellbook entries into his notepad, the chief engineer pointed to the 2258 entry and told CWO4 [redacted] that a wrong rotation alarm occurred at that time. The chief engineer told Mr. [redacted] that this alarm sounded because the engine was still turning one way when he tried to start it in the other direction. CWO4 [redacted] did not ascertain whether the engine was going from ahead to astern or astern to ahead when this alarm went off. The chief engineer testified at the hearing that Mr. [redacted] was mistaken as to when the alarm occurred, and that he (the chief engineer) did not point to any bell book entry when describing the wrong rotation alarm. Mr. [redacted] had read CWO4 [redacted] statement (IO exhibit 69) before he testified, and stated that he immediately realized that Mr. [redacted] statement with regard to the time of the wrong rotation alarm was incorrect.

94. Regarding the wrong rotation alarm, Mr. [redacted] was not familiar with the HYDE PARK's engineering plant and alarms, and thus could only state that he heard an unusual alarm that caused him to look up from what he was doing. He saw the engineer acknowledge the alarm, which was on the upper section of the main engine control console just to the left of the turning gear indicator, and then apparently make an adjustment on the engine telegraph. After the engineer made the apparent adjustment to the telegraph, the audible alarm stopped sounding. Mr. [redacted] does not recall the engineer touching the knob that actually controls the engine as part of his response to this particular alarm. Mr. [redacted] does not recall if there was a start or stop of the engine in conjunction with the alarm extinguishing. The alarm was extinguished within several seconds. The alarm sounded a considerable time after the engine first started when the ship got underway – there had been a number of various operations and alarms that had occurred in the interim. Mr. [redacted] believes this alarm occurred before the ship's force personnel were dispatched to look for damage.

95. It is uncertain whether this alarm should have been logged in the bell book. The first engineer does not believe the electrician is supposed to log this alarm in the bell book. Mr. [redacted] testified that he would write "ww" (for wrong way) in the book if the wrong rotation alarm occurred. Mr. [redacted] did not write ww in the bell book at 2350 or at any other time on the 26th or the 27th of February; nor did he indicate in any other way that this alarm had sounded, much less when it happened.

Emergency (EMY) Astern Command Logged at 2252

96. By some time on the morning of 27 February, someone crossed out the letters "EMY" from the 2252 bridge bell book entry that Mr. Mutas testified stood for the word "emergency." Mr. [redacted] does not know when, why, and by whom those letters were crossed out. According to Mr. [redacted] many people had access to the bridge bell book, including the pilot, the captain, and investigators.

2252 and 2255 Bridge Bell Book Entries

97. All commands issued on 26 February with the exception of the 2252 and 2255 entries were logged in the bridge bell book as a 4-digit number (e.g. 2250). The 2252 and 2255 entries were logged as "52" and "55," respectively. Mr. [redacted] testified that he was the only person to have operated the bridge telegraph during the period of time between getting underway from the anchorage and the allision, and that he made all of the bridge bell book entries, including the 2252 and 2255 entries. Mr. [redacted] testified that he wrote both the 2252 and the 2255 bell book entries at the time the engine responded, and that the reason he wrote only the minutes down for those entries (52 and 55) instead of the full entries (2252 and 2255), as he did with every other entry that night, was that he was shaken up after the allision.

Contradictory Engine Commands Logged in the Engineering and the Bridge Bell Books

98. A comparison of the entries in the engineering and bridge bell books reveals that all entries in the engineering bell book between 2250 and 2256 are the exact opposites of the corresponding commands logged in the bridge bell book (refer to the page 39 for a comparison of all bridge and engineering bell book entries on the night of 26 February). The engineering bell book indicates that that the bridge ordered slow ahead at 2250 and full ahead at 2252, while the bridge bell book indicates that slow astern and full astern were ordered at those times. In addition, the

engineering bell book indicates that the bridge ordered half astern at 2255 and full astern at 2256, while the bridge bell book indicates that half ahead and full ahead were ordered at those times.

99. These are the only entries from the night of 26 February that directly contradict each other. In fact, though there are some minor inconsistencies, there are no other instances in which commands logged as ahead in the bridge bell book are logged as astern in the engineering bell book, or vice versa, between 27 January 1999 and 8 March 1999.

100. Mr. [redacted], the electrician, testified that these contradictory entries are the result of errors by him in filling out the engineering bell book entries on 26 February. Mr. [redacted] testified that he is certain the ship was operating astern at the time of the 2250 and 2252 commands, because he recalls feeling substantial shaking that could only be associated with astern operations. Mr. [redacted] testified that he is unsure why he made the errors in the bell book. One possible explanation he offered was that he was supposed to be getting off the ship and going home the day after this incident, and that made him a little nervous. Another possible explanation he offered was that the bell book in use on 26 February had the ahead and astern columns reversed from the ahead and astern columns in the previous bell book he had used from 10 October to 17 December. He testified that he caught this error himself sometime later, maybe on February 27, when at the chief engineer's request he reviewed the logs. Typically he does not review bell logs after he finishes with his entries, nor does the chief engineer follow up and examine the books.

101. Both the chief engineer and the first engineer signed the engineering bell book, including the relevant pages for 26 February, soon after the ship anchored on 27 February. The chief engineer testified that when he signs a page, he is only certifying that there are no corrections on the page. He is not attesting to the accuracy of the entries made on that page. The first engineer testified that his signature on the page means that he has reviewed the page and verified the accuracy of the entries on it. He does not compare the engineering bell book with the one on the bridge to verify that all of the entries match up. He is more concerned with ensuring that starts and stops of equipment are logical and not inconsistent.

102. Captain [redacted] testified that he discovered the discrepancies between the engineering and the bridge bell books when he examined both bell books in his cabin on 28 February. He did not question any of his crew about the discrepancy since he knew there was going to be an investigation and they would all likely be witnesses. He is not aware of any training having been provided to Mr. [redacted], but believes such training, if it exists, would be the chief engineer's responsibility.

103. Comparison of the information logged in the bridge bell book (left column) and the engineering bell book (right column) from 1540 on 26 February until 0017 on 27 February

BRIDGE (astern left column, ahead right column)	ENGINEERING (ahead left column, astern right column)
1540 – Main engines logged as being checked ahead and astern	(No time) - Pre-sailing test conducted
1820 – pilot change	
1835 – engine stop due to cooling system leak	1840 – stop
1838 – half astern	
1841 – let go stbd anchor, half ahead	
1842 – dead slow ahead	1842 – dead slow ahead
	1843 – half ahead
	1844 – dead slow ahead
1843 – stop	1844 and 40 seconds – stop
1846 – let go port anchor	
1852 – slow ahead	1852 – slow ahead
1853 – stop	1853 - stop
1935 – Chief engineer advises engine ready to move	
2220 – Cramond assumes as pilot	
2222 – Lloyd's on board	
2223 – start heave port anchor	
2228 – dead slow ahead	2227 – dead slow ahead
2229 – stop	2229 - stop
2234 – port anchor aweigh, start heaving starboard anchor	
2239 – dead slow ahead	2238 – dead slow ahead
2243 – stop	2243 - stop
2244 – starboard anchor aweigh	
2250 – slow astern	2250 – slow ahead
2251 – full/emer full astern	2252 – full ahead
2252 – stop	2254 - stop
2255 – half ahead	2255 – half astern
2256 – full ahead	2256 – full astern
	2257 - stop
2258 – half ahead	2258 – half ahead
	2258 and 30 – full ahead
2300 – stop	2259 - stop
2300 – slow ahead	2300 – slow ahead
2303 – half ahead	2303 – half ahead
2347 – slow ahead	2347 – slow ahead
	2349 – dead slow ahead
2350 – stop	2350 - stop
2350 – slow astern	2350 – slow astern
	2350 – half astern
2351 – full astern	2351 – full astern
2352 – slow astern	2353 – slow astern
2352 - stop	2353 and 30 - stop
0007 – drop starboard anchor	
0017 – drop port anchor	

Captain [redacted] Testimony Relating to the Bell Commands

104. Captain [redacted] testified that the bridge bell book completely and accurately reflects the sequence of bell commands he issued that night. He also testified that the sequence of engine commands reflected in the engineering bell book accurately reflects the actual engine maneuvers that occurred during the critical minutes preceding and following the allision with the POTT's tow. Specifically, Captain [redacted] believes that the ship's behavior before the allision was consistent with a slow ahead, full ahead response as opposed to the slow astern, full astern commands he issued at 2250 and 2251. Captain [redacted] also believes that the ship's behavior after the allision was consistent with a half astern, full astern response to the half ahead, full ahead commands he issued at 2255 and 2256. Captain [redacted] testified that if the ship was going full astern before the allision, (1) the stern would have fallen off downriver after the allision with the POTT's tow; (2) the allision wouldn't been forceful enough to have sunk barges and split apart the POTT's tow; and (3) the ship wouldn't have continued downriver and hit the Port Ship Services and the Domino Sugar facilities.

105. Captain [redacted] did not inform the duty casualty investigator, who interviewed him on the night of the incident, that he believed he was getting ahead bells instead of astern bells, or vice versa. In fact, Captain [redacted] told the Coast Guard investigator who arrived on scene that the ship did respond appropriately to the full astern command and to the ahead bells issued after the allision with the POTT's tow. Also on the night of the casualty, Captain [redacted] attributed the HYDE PARK's headway, at least after the impact, to the current. Captain [redacted] had reviewed both the bridge and the engineering bell logs before he testified at the hearing.

Captain [redacted] Testimony Relating to the HYDE PARK's Maneuvering Characteristics

106. Captain [redacted] testified that at the HYDE PARK's draft on 26 February, the top of her propeller would have been three meters and 40 centimeters below the waterline. Due to this fact, Captain [redacted] estimates that when moving from stop to slow astern, the HYDE PARK would take approximately three minutes to generate discernable wash in calm waters. He estimates that it would take approximately 1 ½ minutes to generate discernable wash in calm waters when going from stop to full astern. According to Captain [redacted], astern wash would surface between the bridge wing and the stern, maybe 10 meters astern of the bridge wing. Captain [redacted] testified that there would have been no discernable wash on the 26th due to the river current and the fact that the engine was not turning astern long enough to have generated a wash.

Further Discrepancy in the Bridge Bell Book

107. Captain [redacted] sent two telexes to his company after this incident. In one of the telexes, he wrote, "Corrected by phone to engine for emergency full astern." He does not recall why he used the term "emergency full astern." Captain [redacted] is sure that Captain [redacted] did not order, and he did not relay to the engineers, an emergency full astern command, which is approximately 125 RPMs and will destroy the engine. Captain [redacted] testified that he was unaware what the crossed-out mark "EMY" in the bell book signified.

Turning in the LMR While Experiencing the Conditions that Existed on February 26, 1999

108. Captain [redacted] of the COOPER testified that it would have been difficult, if not impossible, to have turned the HYDE PARK in the river where the incident occurred without the assistance of the ship's engine. Captain [redacted] of the TERENCE testified that the HYDE PARK could have been turned in the river where the incident occurred without the assistance of her engine. He opined that the combined horsepower of the TERENCE and the COOPER should have been adequate horsepower for a ship topping around in the river. Captain [redacted] would have expected to have used ¾ of the river to turn the ship using tugs only. With a combination of the tugs and the ship's engine, the turning radius would have been smaller.

Observations of Coast Guard Investigator Sent Aboard HYDE PARK to Observe Her Maneuvering Characteristics

109. On March 24, 1999, a Coast Guard Investigating Officer was sent aboard the HYDE PARK to observe her maneuvering characteristics during her passage out of the Mississippi River. The HYDE PARK was loaded with 19,268 metric tons of EDC, with a forward draft of 7.88 meters (25.85 ft) and an astern draft of 8.75 meters (28.71 ft) while the observer was aboard. The Coast Guard observer witnessed the ship operate all bells from full astern to full ahead and characterized the vessel's transition between bells, both ahead and astern, as smooth with minimal smoke and without excessive vibrations. The Coast Guard observer also noticed minimal wash while the ship was operating astern, even at full astern. The pilot in charge of the HYDE PARK on March 24, 1999 could not tell whether the engine was operating ahead or astern by the vibrations alone; he had to refer to the RPM indicator.

Possibility that an Engineering Casualty Caused or Contributed to the 26 February Allision

110. Initial reports, including that made by Captain [redacted] were that some sort of engineering casualty caused the allision involving the HYDE PARK. Neither Mr. [redacted] nor any of the ship's personnel report detecting or experiencing any kind of engineering casualty that might have contributed in some way to the allision. After this casualty, the ship traveled upriver to Dow Chemical at mile 210 to offload her cargo. No repairs to the cooling system other than the temporary repairs carried out on 26 February were required to enable the ship to move up to Dow Chemical and back downriver to Violet, Louisiana, at mile 84, to repair the damage resulting from this allision. Cooling system parameters remained normal during subsequent visits by various inspectors examining the vessel in the days after the allision. The cooling water system leak on 26 February was ultimately found to have been caused by a blown gasket. Lloyd's Register certified the cooling system repairs as being completed and satisfactory on 22 March 1999.

111. The chief engineer testified that the overall condition of the HYDE PARK's engineering plant is good. CWO4 [redacted] review of the HYDE PARK's engineering records indicated that between December 1998 and March 1999, there had been no work other than routine maintenance performed on the main engine, and there was no record of any main engine casualties during this period. Only 1,900 liters of oil had been added to the engine between December 1998 and March 1999. The fuel oil heater was observed to be operating properly. Although there were no fuel oil heater readings taken on the day in question, readings taken on

previous and subsequent days were within a normal range and consistent with each other. The HYDE PARK does have a planned maintenance system that is in place and adhered to.

Subsequent Incident While the HYDE PARK Was Still in the Mississippi River

112. While transiting downbound in the Mississippi River after discharging her cargo at Dow Chemical, the HYDE PARK was forced to reduce speed so that the engineers could clean the strainers for the sea water intake for the cooling water system. The ship was trimmed down by the stern during this passage, and river debris clogged the strainers in the sea chest. It took under an hour to clean the strainers. The ship did not lose power, and did not have a problem with the cooling system. The ship could have responded to a full or emergency bell if necessary during this incident.

Radar Repair

113. The problem with the starboard radar turned out to be a defective modulator, and the radar was repaired on 27 February while the vessel was at anchor at Twelve Mile Anchorage.

Human Factors Issues

A. Fatigue

114. Captain [redacted] slept for 8-9 hours the night before this incident, and he testified that he did not experience any fatigue symptoms the evening of the incident.

115. Captain [redacted] had over six hours of sleep in the 24 hours preceding the allision. He had been up since the morning of the 26th when the incident occurred. He testified that he did not experience any particular symptoms of fatigue on the night of the 26th.

116. Mr. [redacted] slept about six hours the night before the allision occurred. Lube oil bunkering finished at about 0200 on the 26th, and fuel oil bunkering began at about 0800 on the 26th. In between those two evolutions he slept. He did not sleep between 0800 and 2300 on the 26th, though he did get some rest. He testified that he did not feel tired at the time of the allision.

117. Mr. [redacted] believes he got eight hours of sleep the night before this incident. He does not believe he got any sleep between the time he woke up, which was approximately 0800, and the time of the allision. He believes he worked the entire day on 26 February. He does not recall feeling fatigued on the night of the 26th.

118. Mr. [redacted] got five hours of sleep the night before the allision, from midnight to 0500, and did not get any sleep or rest during the course of the day. He normally sleeps six hours, more or less, and the amount of sleep he got the night before this incident was not unusual. The ship had been in standby mode for 18 hours. He testified that he was not tired, or at least not too tired, and had no difficulty operating equipment on the night of the 26th.

B. Training

119. The chief engineer testified that Mr. [redacted] is responsible for his own training in filling out the engineering bell book correctly; neither he nor the captain provides any training to Mr.

[redacted] on how this log is supposed to be filled out. Mr. [redacted] feels there is no need to provide training – the watchstanders know what to do. Mr. [redacted] testified that he does not know whether the time logged by the electrician in the engineering bell book reflects the time the command is received or the time the command is executed; he states that that decision is up to the electrician.

120. Mr. [redacted] testified that it is his own decision to write commands in the bridge bell book at the time they are carried out as opposed to when they are ordered.

Drug and Alcohol Test results

121. All drug and alcohol tests performed on Captain [redacted], Captain [redacted] Captain [redacted] Mr. [redacted], Mr. [redacted] and Mr. [redacted] came back [redacted]

ANALYSIS

POSSIBILITY THAT THE CASUALTY WAS CAUSED BY A POWER LOSS OR IRREGULARITY ABOARD THE HYDE PARK

1. There is no evidence that a mechanical deficiency of any kind aboard the HYDE PARK caused or contributed to the allision on February 26, 1999.

EVIDENCE ON THE ISSUE OF WHETHER THE PILOT ERRED BY WAITING TOO LONG BEFORE UTILIZING THE SHIP'S ENGINE AND RUDDER

2. The Mississippi River in the vicinity of New Orleans was in a high water state on February 26, 1999. Approximately 1,000,000 cubic feet of water per second was passing the HYDE PARK at approximately 4 knots as she attempted to turn in the river.

3. The HYDE PARK was heavily loaded and was drawing 27 feet at the bow, 33 feet at the stern. A ship of the HYDE PARK's size and draft would have developed a substantial amount of momentum if she was caught by the current, as Captain [redacted] testified she was, and propelled down and across the river. This conclusion is buttressed by the fact that the HYDE PARK maintained her momentum against the current when she was being maneuvered to anchor after experiencing the cooling system casualty – so much so that Captain [redacted] had to order half astern to take off her headway.

4. Captain [redacted] had the HYDE PARK at dead slow ahead for four minutes while he was raising the starboard anchor, which Captain [redacted] testified gave her some headway.

5. Both Captain [redacted] and Captain [redacted], who have a substantial amount of experience in the river, testified that ships have a tendency to travel across the river in the direction of their turn once they get broadside to the river.

6. The Mississippi River in the vicinity of the allision is approximately 2400 feet wide. The HYDE PARK was anchored ¼ of the way across the river (i.e. approximately 600 feet) from the west bank, and thus only had ¾ of the river (i.e. approximately 1800 feet) in which to top around. This distance was decreased by the fact that the POTT's tow extended 140 feet or more

into the river from the east bank. As a result, the HYDE PARK had only 1650 feet or so in which to turn.

7. Both of the HYDE PARK's anchors were aweigh at 2244. The allision occurred at approximately 2252. The HYDE PARK's rudder remained amidships the entire period of time the ship was underway prior to the allision. The ship's engine was not used until 2250, and even then, only a slow astern command was issued.

8. Captain [redacted] testified that it would have been difficult, if not impossible, for the two assist tugs to have turned the HYDE PARK in the river where the allision occurred without the assistance of the ship's engine. Captain [redacted] testified that it would have been possible for the two assist tugs to have turned the HYDE PARK in the river where the allision occurred without the assistance of the ship's engine, but it would have required ¾ of the river's width to accomplish the turn. Captain [redacted] testified that one of the first questions he asked upon being assigned to turn the HYDE PARK was whether she had power or not; and he further testified that if she did not have power, he would have felt that four or five assist tugs were necessary to ensure that the turn was executed safely.

POSSIBILITY THAT THE CASUALTY WAS CAUSED OR EXACERBATED BY THE SHIP'S PERSONNEL INCORRECTLY RESPONDING TO ORDERED BELL COMMANDS

9. The pilot, Captain [redacted], testified that the HYDE PARK's response was consistent with the engine operating ahead in the minutes preceding the allision and operating astern in the minutes following the allision. In so testifying, he had the benefit of having reviewed both the bridge and the engineering bell books and taking note of the fact that the sequence of commands logged in the bridge bell book is slow astern at 2250, full astern at 2251, stop at 2252, half ahead at 2255, and full ahead at 2256, while the sequence of commands logged in the engineering bell book is slow ahead at 2250, full ahead at 2252, stop at 2254, half astern at 2255, and full astern at 2256. Captain [redacted] testified that the sequence of commands logged in the bridge bell book corresponds to the sequence of commands he actually issued on 26 February, though he believes that the sequence of commands logged in the engineering bell book reflects the actual engine orders the HYDE PARK carried out just before and after the allision.

10. Three possible scenarios can explain the discrepancy between the engineering and the bridge bell books: (1) the third mate, Mr. [redacted], dialed in the correct commands on the telegraph at 2250, 2251, 2255, and 2256, but the engineer, Mr. [redacted] made a simple clerical error and recorded the commands at issue in the wrong columns in the engineering bell book; (2) the third mate dialed in the correct commands at 2250, 2251, 2255, and 2256, but the chief engineer responded in the wrong direction for those four commands, and Mr. [redacted] logged the engineer's actual response, not the order on the telegraph; or (3) Mr. [redacted], possibly through inexperience or loss of situational awareness as the HYDE PARK approached and then struck the HERMAN POTT's tow, inadvertently turned the telegraph knob the wrong way after acknowledging and logging the appropriate commands in the bridge bell book.

A. THE DISCREPANCY BETWEEN THE ENGINEERING AND BRIDGE BELL BOOKS IS ALMOST CERTAINLY NOT THE RESULT OF THE CHIEF ENGINEER OPERATING THE ENGINE IN THE WRONG DIRECTION AFTER RECEIVING THE CORRECT ENGINE COMMAND ON THE TELEGRAPH.

11. It is highly implausible that the third mate dialed in the correct commands at 2250, 2251, 2255, and 2256 but the chief engineer responded in the wrong direction for those four commands. The fact that Mr. [redacted] logged the 2250 and 2251 commands as ahead bells and the 2255 and 2256 commands as astern bells in the engineering bell book does not necessarily reflect what the engineer was doing with the engine controls; Mr. [redacted] testified that he logs what is transmitted from the bridge on the telegraph, not what the engineer does or does not do. Had the chief engineer responded in an ahead direction to an astern command on the telegraph and vice versa, he would have triggered a whole array of audible and visual alarms. These alarms would have continued the entire six-minute period between 2250 and 2256 that the telegraph and engine were mismatched. Yet the three engineering watchstanders and a disinterested witness, Mr. [redacted] all testified that no such prolonged alarm occurred that night. Thus, it is almost certain that the discrepancy between the engineering and bridge bell books is not the result of the chief engineer responding incorrectly to commands received on the telegraph.

B. EVIDENCE TENDING TO SUPPORT A CONCLUSION THAT THE 2250, 2251, 2255, AND 2256 ENTRIES IN THE ENGINEERING BELL BOOK ARE THE RESULT OF A SIMPLE CLERICAL ERROR BY THE ELECTRICIAN, MR. [redacted]

12. Despite Captain [redacted] testimony at the hearing, on 26 February 1999, within hours of the casualty, he informed the MSO New Orleans duty casualty investigator that the HYDE PARK did respond appropriately to the pre-allision astern and the post-allision ahead engine commands.

13. During his testimony at the hearing, Mr. [redacted] blamed himself for the discrepancy between the logbooks, claiming that he incorrectly logged the 2250, 2251, 2255, and 2256 commands in the engineering bell book. Mr. [redacted] offered several explanations for his mistakes in logging the 2250, 2252, 2255,and 2256 commands. The first explanation he offered is that the columns in the engineering bell book that was in use on 26 February and the columns in the previously-used engineering bell book are reversed; in other words, the astern column in the old bell book was on the left and the ahead column was on the right, whereas the ahead column in the new bell book was on the left while the astern column was on the right. His implication was that he had become habituated to logging astern commands in the left column of the old bell book and ahead commands in the right, and simply relapsed in a moment of inattention. He also testified that his error may have been the result of his excitement at the prospect of flying home to Bulgaria on 27 February, the day after the allision. He claims not to have been overly tired on the evening of the 26th, but he didn't have much sleep the night before and had not gotten much or any rest on the 26th. Any or all of these factors may have contributed to Mr. Tarasovs incorrectly logging the 2250, 2252, 2255, and 2256 commands.

14. If the commands logged in the engineering bell book truly reflect the commands that were received and carried out by the engineers, both Captain [redacted] and Captain [redacted] would have to have remained oblivious to the fact that the engine/shaft was rotating in the wrong direction through four bell commands over a six minute period. It is hard to believe that Captain [redacted] who testified that he was concerned whether the engine was operating at all before the allision and who called for successively greater astern RPMs as the situation grew progressively

more serious, would not have taken a couple of seconds to seek out a tachometer whose light was working to verify that the engine was working and was responding to his ordered commands.

15. Even more difficult to believe is that Captain [redacted] would have to have failed to notice this sequence of "errors" until after 2256. Such inattention by Captain [redacted] is inconsistent with his actions earlier in the same evening, when his concern for the HYDE PARK resulted in the HERMAN POTT being forced to move, much to Captain [redacted] and Captain [redacted] annoyance, from a position directly above the ship to a position across the river. This inattention by Captain [redacted] is even more unlikely in view of the following:

a. Captain [redacted] was aware of the danger the HYDE PARK was in well before the allision with the POTT's tow occurred. Captain [redacted] testified that in response to his question to Captain [redacted] about whether the ship's engine was operating at all before the allision, Captain [redacted] ducked back into the pilothouse, came back out and reported that the engine was "okay." If this version is correct, it is hard to imagine that Captain [redacted], confronted by a pilot who believed the ship's engine wasn't responding, would not have at a minimum looked at a tachometer after ducking back into the pilothouse and before reassuring the pilot that the engine was okay.

b. Captain [redacted] disputes Captain [redacted] assertion that he questioned whether the HYDE PARK's engine was operating. Both he and Mr. [redacted] place Captain [redacted] in the pilothouse monitoring RPMs after the full astern command was issued, instead of out on the bridge wing where Captain [redacted] says he was. The full astern command was not issued until after Captain [redacted] observation to the pilot that the HYDE PARK was being "taken by the river." If this version of events is correct, it is hard to conceive that Captain [redacted], positioned as he was, did not catch the fact that the shaft was rotating in the wrong direction before the allision, and was again operated in the wrong direction after the allision.

c. Regardless of who did or said what when, all witnesses agree that Captain [redacted], in response to a request from Captain [redacted], called down to the engineers soon before the allision and, in some form, asked for more RPMs (RPMs in excess of full astern). The allision occurred within a minute or so of that phone call. It is difficult to imagine Captain [redacted] being unaware of the shaft operating in the wrong direction before being asked for more RPMs by the pilot; it is inconceivable that he would have remained oblivious to this error after receiving and responding to the request for more RPMs.

16. Finally, if the 2250, 2251, 2255, and 2256 commands logged in the engineering bell book reflect the actual engine commands received on the telegraph instead of a clerical error by Mr. [redacted] then Captain [redacted] who was a credible witness, and all of the ship's personnel would have had to have lied at the formal board. Captain [redacted] and all of the ship's personnel testified that they felt vibrations at or around the time of the allision, and the engineers are sure that the vibrations they felt were astern vibrations. The first engineer, whom I found to be especially credible, testified to the concern he felt regarding the strain that was being put on the engine in an astern direction after the call for more RPMs came down from the captain. Captain [redacted] and Mr. [redacted] both testified that they saw the tachometer in the astern quadrant at and before the time of the allision.

17. Not only would all of the ship's personnel who testified have to have lied under oath, but there would have had to have been some sort of collusion to ensure that their testimony was

generally consistent. That means that either Captain [redacted], the P & I Club, or the lawyers representing Halcot Shipping – or some combination of the three – orchestrated a campaign of deception. Though this is certainly possible, I find it difficult to believe that this occurred.

C. EVIDENCE TENDING TO SUPPORT A CONCLUSION THAT THE 2250, 2251, 2255, AND 2256 ENTRIES IN THE ENGINEERING BELL BOOK REFLECT THE ACTUAL COMMANDS THAT WERE MISTAKENLY DIALED INTO THE TELEGRAPH BY THE THIRD MATE, MR. [redacted]

18. If the commands at issue logged by Mr. [redacted] are indeed simple clerical errors, then they are amazingly unfortunate errors for the ship and her owners. These four entries bracket the allision – the 2250 and 2251 commands preceded the allision, and the 2255 and 2256 commands followed it. Mr. [redacted] logged every other command issued during the underway period in question (except for the 2300 entry), yet only these four commands are logged in the wrong columns – no other entries besides these four are at issue. In fact, between early January 1999 (when the HYDE PARK's crew began using the engineering bell book that was in use on the day of the allision) and early March 1999, there are no other instances where the bridge bell book indicates a command as being ahead while the engineering bell book indicates the same command as being astern, or vice versa.

19. If the fact that the two columns in the successive engineering bell books were reversed is the explanation for his "lapse," why did Mr. [redacted] revert to his former habits only for these four crucial entries but correctly log every other entry that night? What event made him resume logging the bell book entries received in the engine control room in the proper columns at 2258, at which time the engineering and bridge bell books came back into synch? Once he reverted back to making entries in the proper columns at 2258, why didn't he immediately realize that he had logged the last four command in the wrong columns?

20. Mr. [redacted] was quite inexperienced as a third mate; by his own testimony, he had only served in that position aboard the HYDE PARK for a month or so before the allision, and had never filled that position on any ship before the HYDE PARK. His Liberian third mate's license was only "issued" on the 26th of February, the day of the allision, presumably after the Liberian government received some rather frantic calls from the vessel's owners soon after the casualty. It is possible that his inexperience, coupled with the excitement that undoubtedly existed on the bridge immediately before and after the allision (excitement that would not have been experienced by the engineering watchstanders, who were oblivious to the imminent danger the ship was in), caused Mr. [redacted] to make a simple error and turn the telegraph ahead when ordered to go astern, and vice versa.

21. Several witnessed reported that the ship "lurched ahead" as she turned broadside to the current before the allision, and that she was traveling quite fast – unusually fast – at and around the time of the allision. These observations might be explained by the fact that the ship got caught by the current and traveled across the river as vessels tend to do when turning in the river, despite being at slow and, later, full astern. But they also might be explained by the fact that the ship was exacerbating the current's effect by operating her engine ahead instead of astern in the minutes before the allision.

22. The final piece of evidence supporting a conclusion that the third mate mistakenly dialed ahead commands in response to an astern order and vice versa is the wrong direction alarm the

ship experienced at some point during the underway evolution in question. This is a very unusual alarm; in all their time on the ship, none of the engineering watchstanders had ever heard the alarm sound except during tests, even while the HYDE PARK was maneuvering to anchor or to get underway from an anchorage. Yet on the night the ship was involved in a serious casualty, they heard this alarm. The engineers all testified that the alarm occurred long after the allision, while the ship was maneuvering to anchor at Twelve Mile Anchorage. Yet Warrant Officer [redacted] of Marine Safety Office New Orleans testified that as he was writing bell commands in his note pad while he was aboard the HYDE PARK to assist in the casualty investigation, the chief engineer pointed to the 2258 entry and said that that is when they received the wrong direction alarm. Mr. [redacted], whose recollection of events was somewhat hazy, provided evidence that seems to indicate that the alarm came before the engineer dispatched personnel to look for damage (which happened at approximately 2300). The first engineer, Mr. [redacted], testified that the alarm occurred when the ship was moving from an astern to an ahead bell.

23. The wrong direction alarm raises the possibility that someone on the bridge noticed after 2256 that the bridge telegraph was in the astern quadrant or that the shaft was rotating astern, despite the fact that the last command the pilot had allegedly ordered was an ahead bell. Realizing the error, that person might have quickly attempted to hide that error by shifting the telegraph from full astern (the 2256 command logged in the engineering bell book) to full ahead (the 2256 command logged in the bridge bell book, and the one the pilot says correctly reflects the command he ordered at 2256). The rapid switch from astern to ahead on the telegraph may have resulted in a mismatch between the ordered bell and the direction of actual shaft rotation, causing the wrong rotation alarm.

SIGNIFICANCE OF REPORTS THAT THE HYDE PARK DID NOT EXHIBIT PROPELLER WASH OR SMOKE IMMEDIATELY BEFORE HER ALLISION WITH THE POTT'S TOW

24. The fact that in the moments before the allision several witnesses, most importantly Captain [redacted] and Captain [redacted], did not see smoke or see the wheel wash they would have expected to have seen if the ship was operating astern, is not particularly significant. The allision occurred at night, and thus their ability to make visual observations would have been diminished. The HYDE PARK was deep in the water and was moving swiftly downriver; as a result, she may well have outrun her wash by the time it surfaced. Furthermore, the Coast Guard observer who rode the ship during daylight hours on March 24, 1999, and who observed the ship operating at, among other commands, full astern, reported seeing little smoke and minimal wash generated while the ship was operating astern. For these reasons, the fact that some participants failed to observe wash or smoke at or near the time of the allision does not lead to a conclusion that the HYDE PARK's engine was either operating ahead or not operating at all in the crucial seconds preceding the allision.

CONCLUSIONS

1. The apparent cause of the HYDE PARK's allision with the HERMAN POTT's tow is that the pilot, Captain [redacted] failed to effectively utilize the ship's engine and rudder. Captain [redacted] kept the ship's rudder amidships the entire time she was underway before the allision, and he did not issue his first engine command until 2250, which was six minutes after she began her turn and only two minutes before the allision.

2. A contributing factor to this casualty is that Captain [redacted] failed to use a sufficient number of assist tugs during the HYDE PARK's turn. Despite his testimony that four or five assist tugs would have been necessary to turn the HYDE PARK without the assistance of her engine, he used only two assist tugs while failing to use the ship's engine until a maximum of two minutes before the allision.

3. A contributing factor to this casualty is complacency by both Captain [redacted] and Captain [redacted] during their turnover. Captain [redacted] testified that he was unaware of the interactions that had occurred between the HERMAN POTT and Captain [redacted] aboard the HYDE PARK earlier in the evening, and that he was unaware of the POTT's position when he began to turn the HYDE PARK. The HYDE PARK was anchored ¼ of the way across the river from the west bank, and thus only had ¾ of the river available in which to make her turn. It is entirely possible that had Captain [redacted] been aware of the POTT's position and the fact that her tow extended 140 feet or more into the river from the east bank, he would have utilized the HYDE PARK's rudder or engine sooner to assist in the turn.

4. A possible contributing factor in this casualty may be that the HYDE PARK's third officer inadvertently dialed in the wrong engine commands at 2250, 2251, 2255, and 2256. It can never be conclusively established whether this occurred or not; there is compelling evidence both pro and con. However, even if the HYDE PARK's third officer inadvertently dialed in the wrong engine commands at 2250, 2251, 2255, and 2256, this error merely exacerbated an allision that was already inevitable by the time the first astern command was given at 2250. There was no dispute that the HYDE PARK had headway before the 2250 slow astern command; Captain [redacted] testified that he had commented to Captain [redacted] that the ship was "taken by the river" prior to the 2250 astern command being issued. This headway was due to three things: the four minutes the HYDE PARK was at slow ahead while the starboard anchor was being raised; forward motion resulting from the fact that the assist tug on the port bow, the TERENCE, was never able to reach a 90 degree angle relative to the HYDE PARK when she was pushing the ship prior to the allision; and the tendency of the river to propel a ship turning in the river toward the opposite bank. By the time Captain [redacted] ordered slow, then full, then "maximum" astern beginning at 2250 to counteract that headway, it was already too late; the HYDE PARK was already well into her turn and most of the way across the river.

5. There was no loss of power or any other mechanical deficiency or defect aboard the HYDE PARK that contributed to the casualty in any way.

6. No other vessels or their operators, including the HERMAN POTT and the two assist tugs, contributed to the casualty in any way. The POTT and her tow were stationary throughout the HYDE PARK's turn, and Captain [redacted] appears to have exhibited commendable diligence and situational awareness throughout this incident. Though the TERENCE was not able to reach a full 90 degree angle relative to the ship during the turn, there is no evidence that this failure is due to any incompetence or negligence by the TERENCE's operator. On the contrary, both Captain [redacted] and Captain [redacted] praised the performance of the assist tugs.

RECOMMENDATIONS

To the U. S. Coast Guard

1. It is recommended that 33 CFR Part 164 be amended to require all vessels over 1600 gross tons to maintain and operate a bell log recorder, a course recorder, and a rudder angle indicator recorder.

2. It is recommended that a copy of this report be provided to the Liberian Maritime Administration.

To the Commanding Officer, Marine Safety Office New Orleans

3. It is recommended that a Letter of Warning be sent to Halcot Shipping for the HYDE PARK's failure to report the casualty she experienced to one of her two radars, which rendered it inoperative.

4. It is recommended that a copy of this report of investigation be provided to all parties in interest upon final agency action and closure of this case.

5. It is recommended that Captain [redacted] be awarded a Coast Guard Certificate of Merit. But for his extraordinary efforts in remaining alongside the HYDE PARK and pushing her head around so that she struck one of the HERMAN POTT's barges instead of the POTT herself, this casualty could have resulted in the death of one or more of the POTT's crew.

6. It is recommended that Captain [redacted] be awarded a Coast Guard Certificate of Merit. By realizing the imminent danger of allision and taking prompt action to warn his two deckhands who were aboard the POTT's barges, Captain [redacted] very possibly saved their lives.

To the Crescent River Port Pilots Association and the New Orleans – Baton Rouge Steamship Pilots Association Board of Commissioners

7. It is recommended that the Crescent River Port Pilots Association and the New Orleans - Baton Rouge Steamship Pilots Association Boards of Commissioners review procedures for turning vessels during high water conditions, and provide training and recommendations as necessary.

8. It is recommended that the Crescent River Port Pilots Association and the New Orleans – Baton Rouge Steamship Pilots Association Boards of Commissioners review watch relief procedures, and provide training and recommendations as necessary.