

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division

Washington, D.C. 20594

September 6, 2019

Voyage Data Recorder Report

Specialist's Factual Report

By Nicholas Swann

1. EVENT SUMMARY

Location: Houston, TX
Date: May 10, 2019
Ship: LPG Tanker
Registration: 9791224
Operator: Genesis River
NTSB Number: DCA19FM033

The 755-foot-long, fully-laden, LPG carrier Genesis River (GR) was outbound in the Houston Ship Channel under pilot control. The GR was transiting near the "Bayport Flare," the brief widening of one side of the Houston Ship Channel where the Bayport channel intersects it. Near the south end of the Bayport Flare, where the channel narrows again, the GR met the inbound LPG carrier BW Oak (BWO). After the GR and BWO passed (where there is also a turn in the channel), the GR swung to port toward the opposite (Red) side of the channel. In the barge lane outside the channel on the Red side, the towing vessel Voyager was inbound pushing two loaded tank barges arranged side-by-side. The pilot on the GR, concerned that the GR would hit the Voyager, instructed the relief captain on the towboat to cross his vessel to the other side of the channel. The Voyager turned to cross the channel, but the GR swung back to starboard as it neared the Red bank. The GR then struck one of the Voyager's two barges, nearly cutting it in half, and the second barge capsized.

2. GROUP

A group was not convened for the data analysis of the Voyage Data Recorder (VDR).

3. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following voyage data recorder:

Device Manufacturer/Model: JCY-1900
Serial Number: MB52801

3.1. JCY-1900 VDR Description

The JCY-1900 is a VDR system capable of recording navigation, propulsion, control surface, alarm, and automatic identification system (AIS) data. Additionally, bridge audio and communications audio channels are recorded by the system. A minimum of 12 hours of data are recorded by the system.

3.2. Data Recovery

The data was provided to the NTSB Vehicle Recorder Division as a series of file structures. The files were then converted into the National Marine Electronics Association (NMEA) 0183 format using the provided software from the manufacturer of the VDR. From there, lab software was used to convert the data into engineering units.

3.3. Time Correlation

The extracted data was recorded in universal time coordinated (UTC) and will be displayed in UTC for this report. The data shown below is a combination of the parametric data recorded by the VDR as well as transcribed information from the audio recording of the VDR. The transcription of the VDR audio can be found in the transcription factual report.

A delay was noted between the audio recording and the data logging. This delay was rectified by aligning aural cues in the audio recording with their associated parameter in the recorded data. When the engine order telegraph (EOT) position was changed there was an accompanying alarm heard on the bridge. The timing of that alarm was aligned with the associated increase in the RPM demand parameter. A representative sample of engine RPM commands was taken, and the average of their time differences was implemented. This resulted in moving the audio transcribed data forward by 9.4 seconds.

3.4. Data Description

The extracted data included 22.5 hours of parametric data, beginning on May 10, 2019, at 0700 UTC and going to May 11, 2019, at 0530 UTC. The accident occurred roughly at 2015 UTC on May 10, 2019. The data from the time period of 1900 UTC to 2100 UTC on May 10, 2019, were determined to be of interest and are included in this report. Tabular data used in this report will be included as an attachment.

3.5. Graphical Data

Figure 1 is a graphical overlay generated using Google Earth for the accident voyage. The weather and lighting conditions in Google Earth are not necessarily the weather and lighting conditions present at the time of recording.

Figure 2 is an overview of ship parameters from the time the second pilot started his watch to the collision. Indicated on this graph are the verbal commands of the pilot

overlaid onto the rudder angle and course parameters. The green markers over the rudder angle indicate the time and position of the rudder commands when the pilot was navigating by rudder order. The black markers over the heading indicate the time and position of heading commands when the pilot was navigating by heading.

Figure 3 shows an overview of ship parameters for approximately six minutes before the accident. As with figure 2, the green and black markers indicate the transcribed verbal commands of the pilot given to the helmsman.

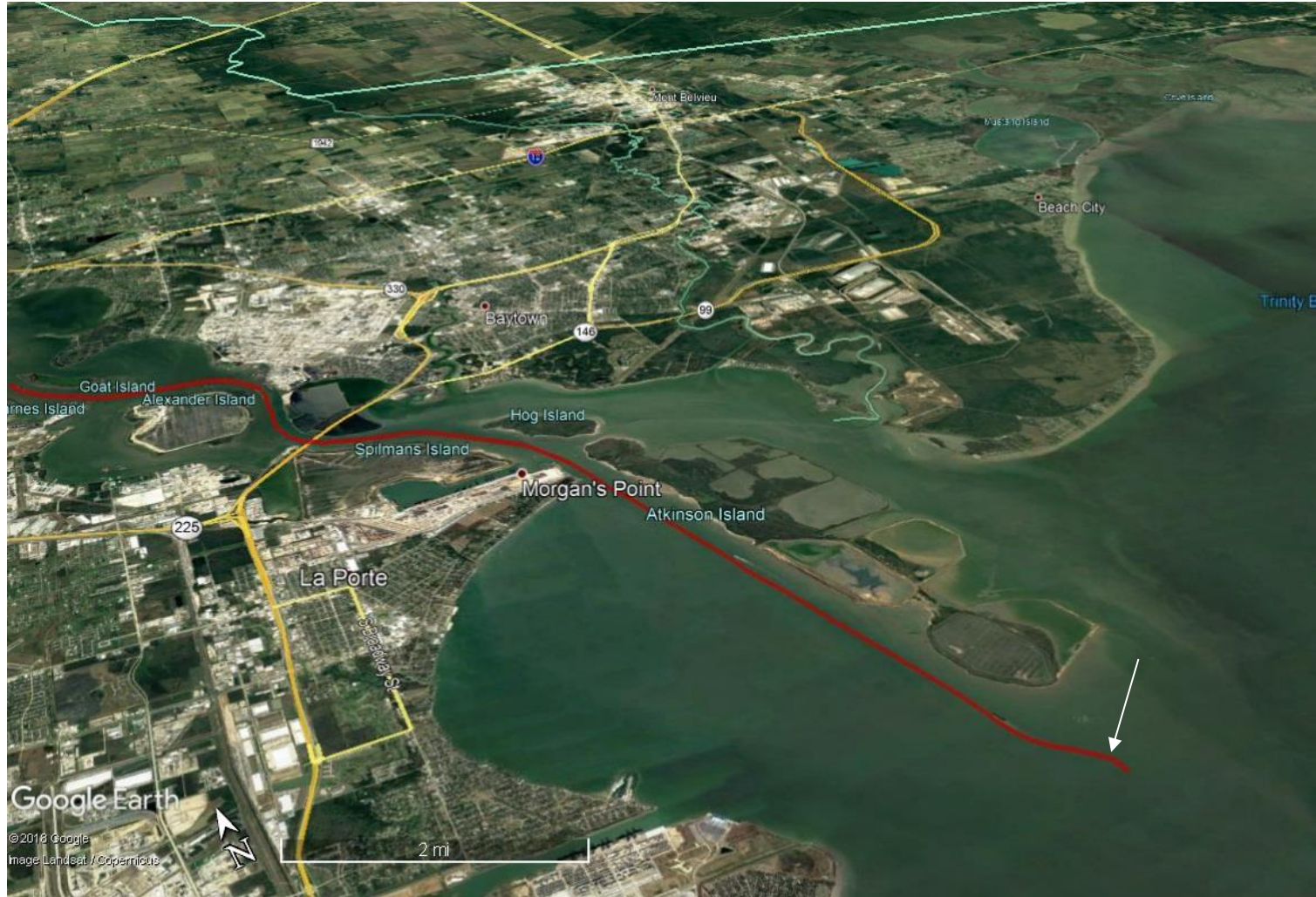
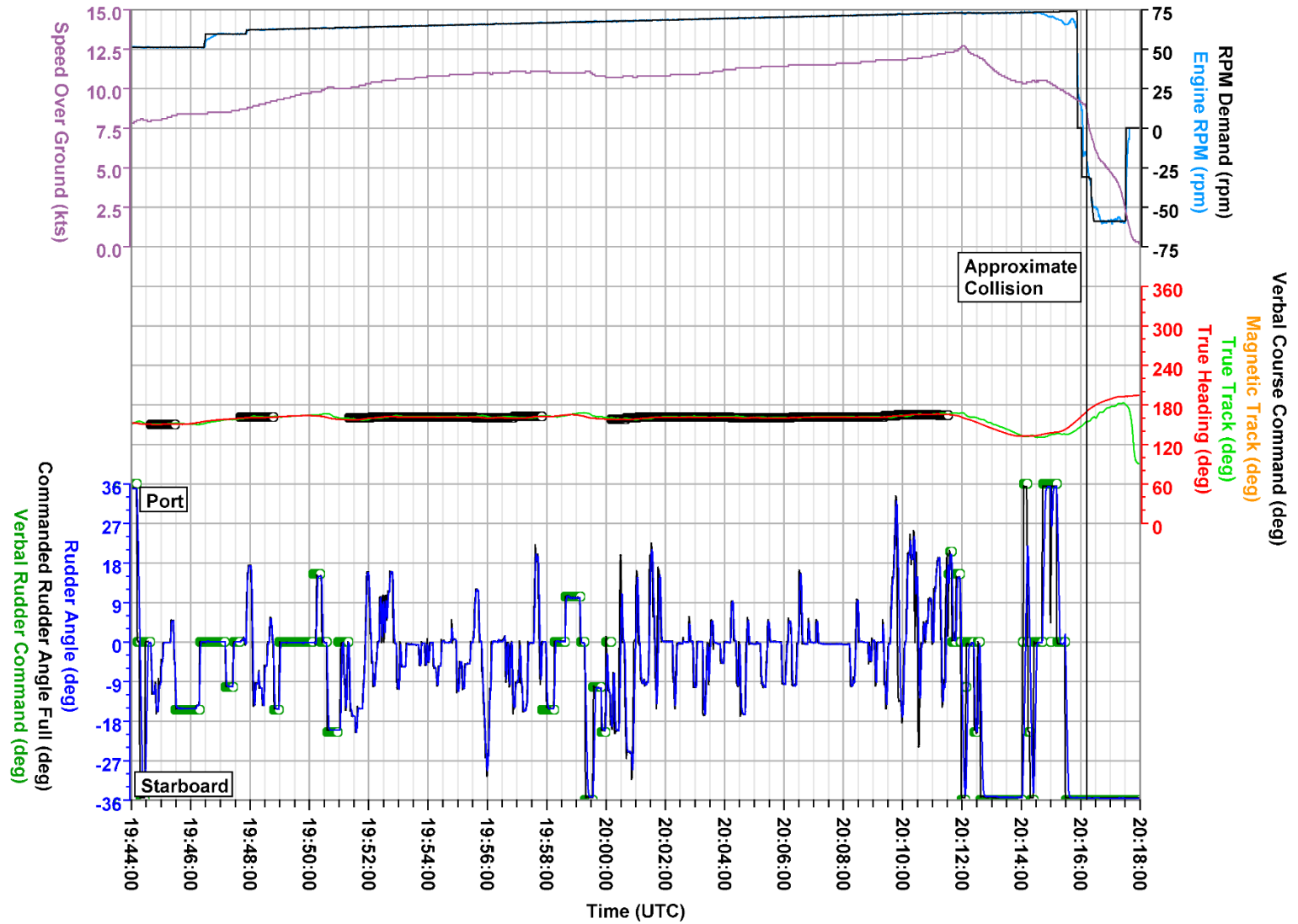
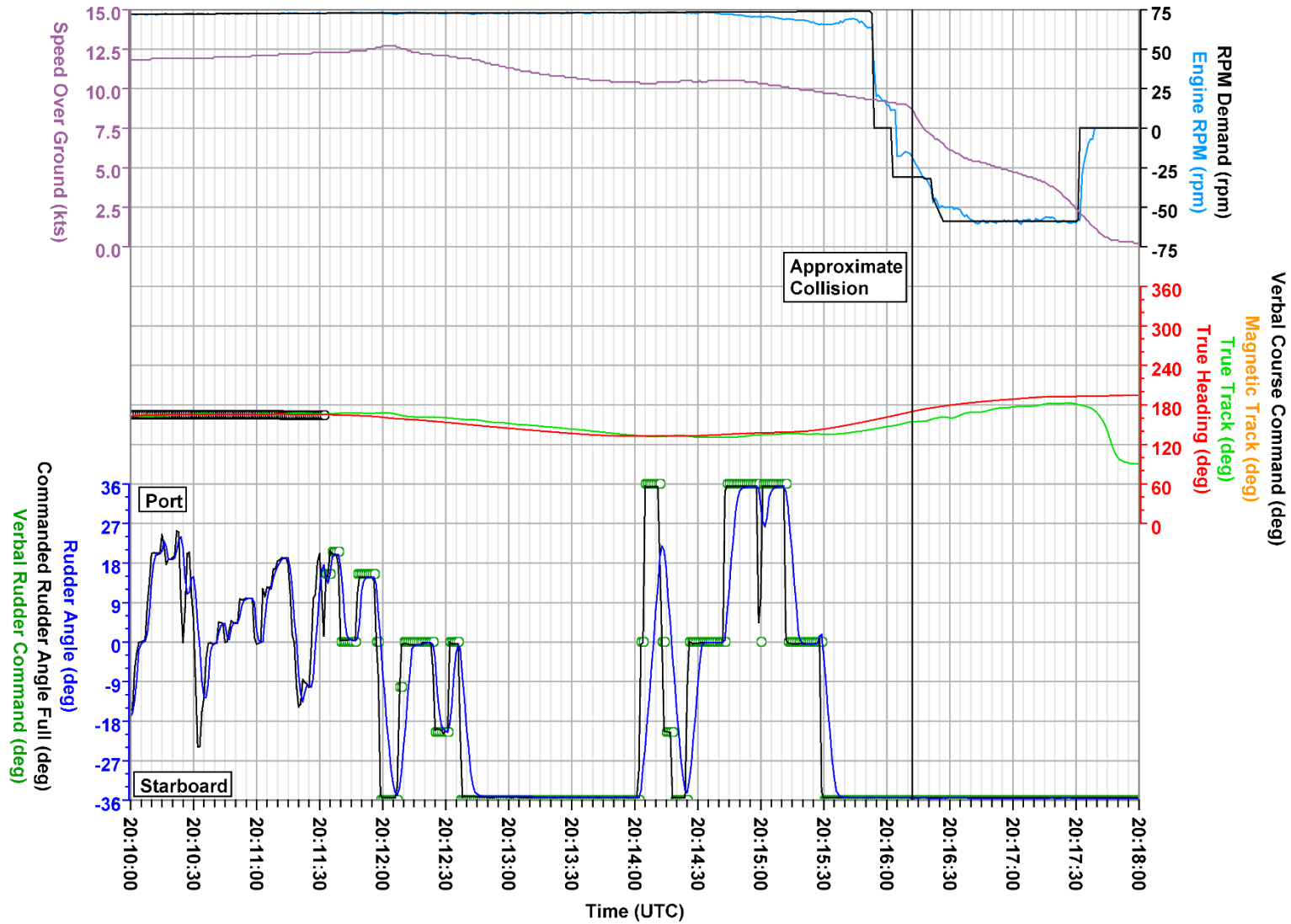


Figure 1. Google Earth overlay of ground track with collision location shown.



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Figure 2. Recorded ship parameters for Pilot's watch.



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Figure 3. Recorded ship parameters near time of collision.