NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division
Washington, DC 20594

June 1, 2013

Recorded Data Factual Report

Specialist's Factual Report
By Christopher Babcock

1. EVENT

Location:	New York, New York
Date:	January 9, 2013, 0841 eastern standard time (EST)
Operator:	Seastreak
NTSB Number:	DCA13MM005

2. GROUP

A group was not convened.

3. SUMMARY

On January 9, 2013, at approximately 0841 eastern standard time (EST), the passenger vessel *Seastreak Wall Street* allided with a barge and pier while attempting to dock at pier 11 in lower Manhattan, New York City. Approximately 80 of the 326 passengers aboard sustained injuries ranging from minor to critical. Recorded data from several sources was recovered and evaluated.

4. DETAILS OF INVESTIGATION

4.1. Recorded Data

4.1.1. Automatic Information System (AIS)

AIS is a shipboard broadcast system that acts as a transponder that transmits various vessel-related parameters such as position, speed, course, heading, destination, etc. The transponder operates in the VHF band and can be received by other vessels for collision avoidance and shore stations with appropriate equipment. The AIS position report is automatically generated and transmitted every 2-10 seconds based on speed and turn rate of the vessel.

AIS position reports were not recorded on board the *Wall Street*. Recorded AIS position reports, receive d at a number of antennae in the New York area, were provided by the Coast Guard Navigation Center. Figure 1 shows a plot of the parametric data throughout the accident voyage. Figure 2 shows the ground track on satellite imagery of the accident voyage. Red icons indicate AIS position data showing a speed over ground of at least 30 knots. Green icons indicate position data showing a

speed over ground under 30 knots. Figure 3 shows the ground track as the *Wall Street* was attempting to dock at Pier 11.

4.1.2. Engine Recorder

The *Wall Street* was equipped with 2 MTU 2467 horsepower diesel engines (port engine serial number 527109155, starboard engine serial number 527109156), each with a controllable pitch propeller. The digital engine control unit for each engine was equipped with a "crash recorder." The crash recorder for each engine contains two memory storage locations that activate on any engine shutdown event or other crash recorder trigger. Subsequent crash recorder activations will overwrite the oldest event in memory unless the recorder is configured to lock the data in place. The crash recorders on these engines were not configured to lock the data in place.

Each triggering event contains three concurrent recordings: 20 seconds surrounding the event at a sample rate of 10 Hz, 60 seconds surrounding the event at a sample rate of 1 Hz, and 60 minutes surrounding the event at a sample rate of 1/60 Hz. According to the master, both engines experienced a shutdown after impact with the pier. The engines were restarted to maneuver the vessel to pier 11 and secured. There were no engine starts between that time and when the data from the crash recorder was downloaded.

Figures 4 & 5 show all recovered RPM and torque data from the crash recorder for the port and starboard engines. Figures 6 & 7 show RPM and torque data for both engines surrounding the time of the accident. Both engines recorders logged a "SS Engine Speed too Low" message at the time of the accident. According to the engine manufacturer, if engine speed drops below 200 RPM without receiving a stop command, the engines will go into a safety shutdown mode and automatically shut down the engines. According to the electronic engine logs downloaded from each engine, the port engine had experienced 4 "SS Engine Speed too Low" events over the operational history of the engine, the last occurring at engine operating time 1311:23:11. The starboard engine had experienced only 1 "SS Engine Speed too Low" event over the operational history of the engine, occurring at engine operating time 1304:56:36. The engine operating times are logged separately for each engine and reflect only cumulative engine run time. There is no rigorous correlation between engine operating time and time of day without uncertainty.

4.1.3. Cell Phone Records

Cell phone records were retrieved from the carriers for the master, the mate on the bridge at the time of the accident, and the company phone kept on the bridge.

4.1.3.1. Mate's Cell Records

Cell phone records from the number of the mate's personal cell phone were reviewed. On the day of the accident one text message was sent during the times the *Wall Street* was underway according to the ship's log. This message was sent at 0827 EST, approximately 14 minutes prior to the accident. According to the mate's interview,

he sent a text to the company containing operational data concerning the number of passengers aboard.[1] Text message content could not be retrieved from the carrier.

Call activity data was also reviewed from the evening of January 5 through the morning of the accident. There was no call or text activity during the times the mate reported he was asleep.

Records for data usage were not available.

4.1.3.2. Master's Cell Records

Cell phone records from the number of the master's personal cell phone were reviewed. On the day of the accident there was no inbound or outbound call activity during the times the *Wall Street* was underway according to the ship's log. One outgoing text was sent at 0813 EST, approximately 28 minutes prior to the accident about 13 minutes after the *Wall Street* had departed Atlantic Highlands.

Call activity data was also reviewed from the evening of January 5 through the morning of the accident. The master reported he had sleep opportunities during his daily breaks on January 7 between 1300 and 1345 EST and on January 8 between 1045 and 1250 EST. Table 1 shows the text activity during the mid-day sleep opportunity on January 7.[2]

Table 1. Text message activity during January 7 mid-day sleep opportunity.

Time (EST)	Direction
1317:03	Incoming
1317:53	Outgoing
1326:17	Incoming
1326:28	Incoming
1326:43	Incoming
1328:47	Outgoing

The records do not indicate when incoming messages were viewed by the user, only the time they are delivered to the phone by the system. The text message activity between 1317 and 1329 EST on January 7 was between the master and the same phone number. There was no other text message activity during the times the master reported he was asleep.

With the exception of two inbound answered phone calls from the same number on January 8 at 1211, lasting 21 seconds, and 1216, lasting 42 seconds, there was no call activity during the times the master reported he was asleep.

Records for data usage were not available.

4.1.3.3. Company Cell Phone

Cell phone records for the company phone on the bridge of the *Wall Street* were reviewed. No text message activity was present for several days prior to the accident. The only text message activity recorded was post-accident. No call activity was present prior to the accident on January 9. The records show several calls made in the minutes after the accident to the Vice President of Marine Operations at Sea Streak.

Records for data usage were not available.

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[1] See public docket for this accident for complete interview
[2] See public docket for this accident for complete interview

4.2. Timing and Correlation

4.2.1. Crash Recorder Data

Timing on the engine crash recorders are expressed in engine operating hours for each respective engine.

4.2.2. AIS Data

The *Wall Street* was equipped with a Class A AIS transponder. The position reports were captured and recorded by the Coast Guard National AIS (NAIS) program.

Transmitted AIS position reports do not contain a full timestamp. The only timing information transmitted with the message is seconds after the minute based on the GPS time of the transmission. The local NAIS antenna system applied a GPS timestamp to the position report before sending the timestamped message to central NAIS data servers. As this timestamp was applied at the receiving station, an irregular offset was found present in the data (example shown in Figures 8 & 9). The AIS timestamp was rebuilt using the hours and minutes from the receiving station timestamp, and the seconds after the minute field from the transmitted message, producing a more consistent time history.

A tabular listing of AIS data for the *Wall Street* can be found as an attachment to this report in the public docket for this accident.

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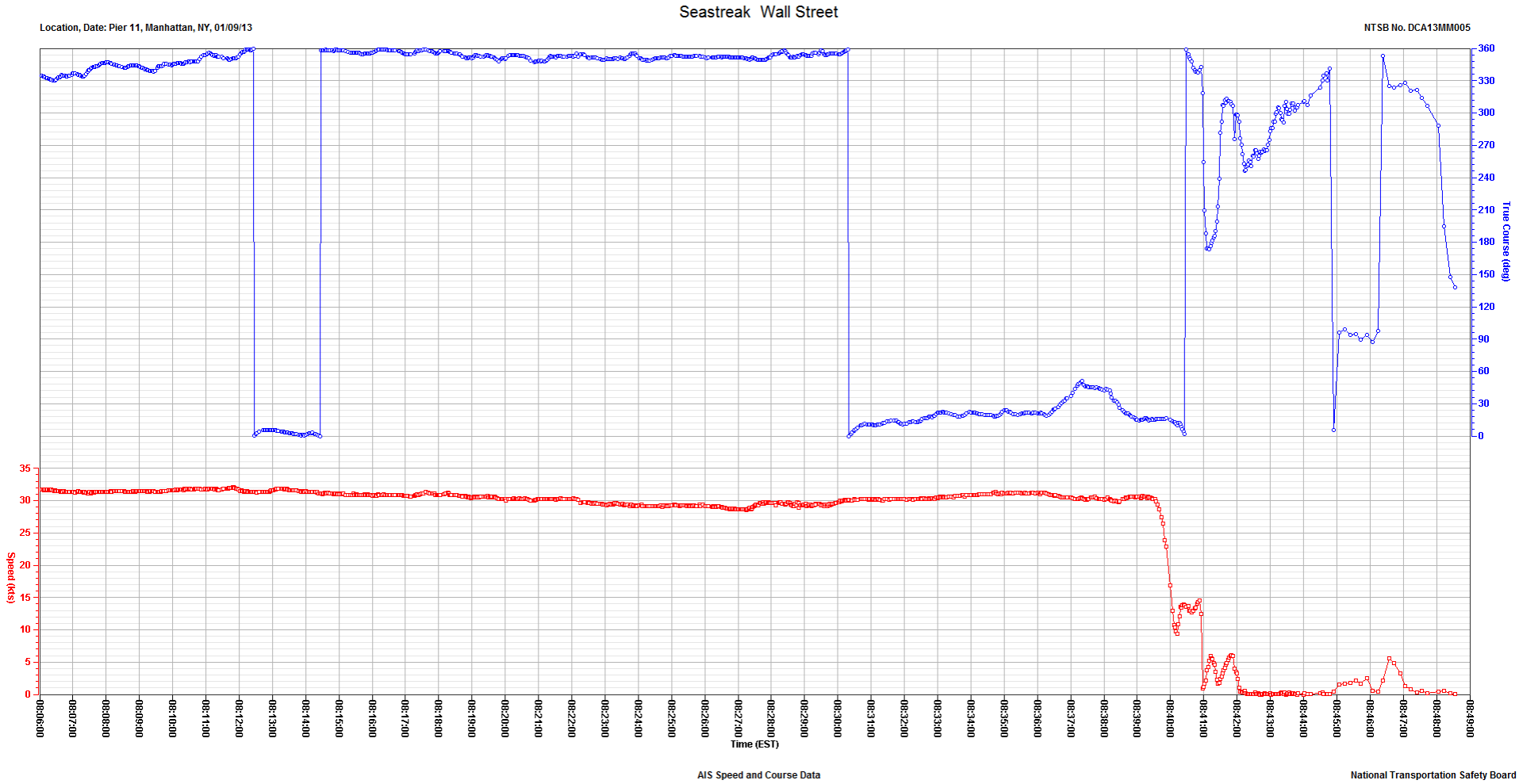

Figure 1. AIS speed and course data from accident voyage.

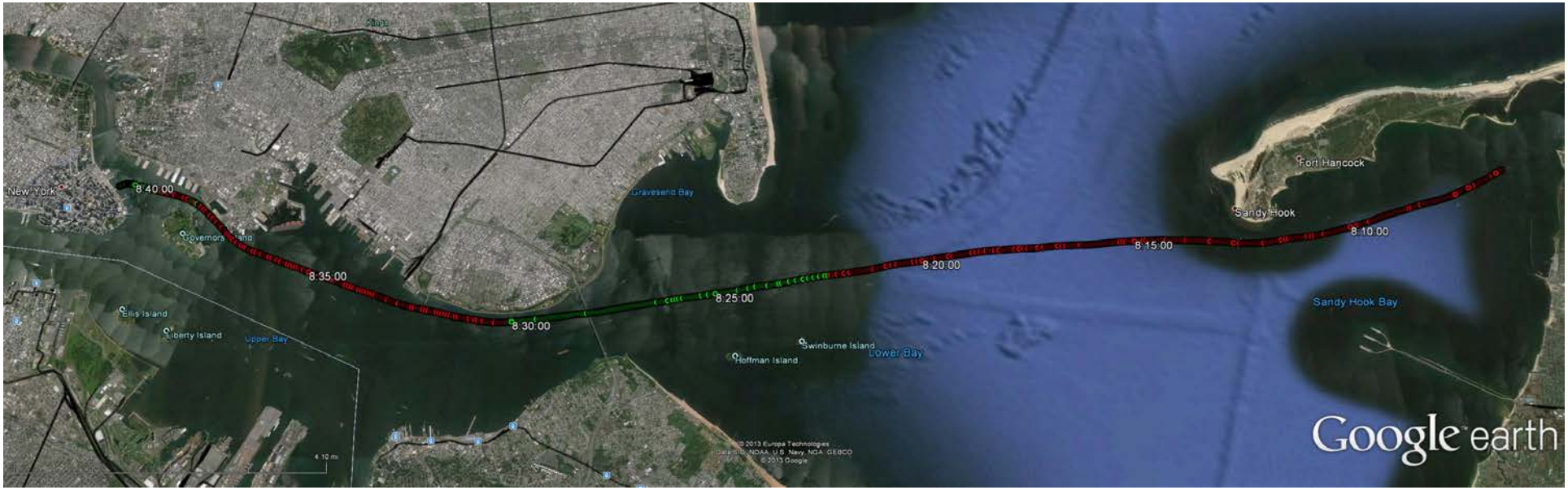

Figure 2. AIS data from accident voyage. Speeds greater than 30 knots are indicated by red icons.

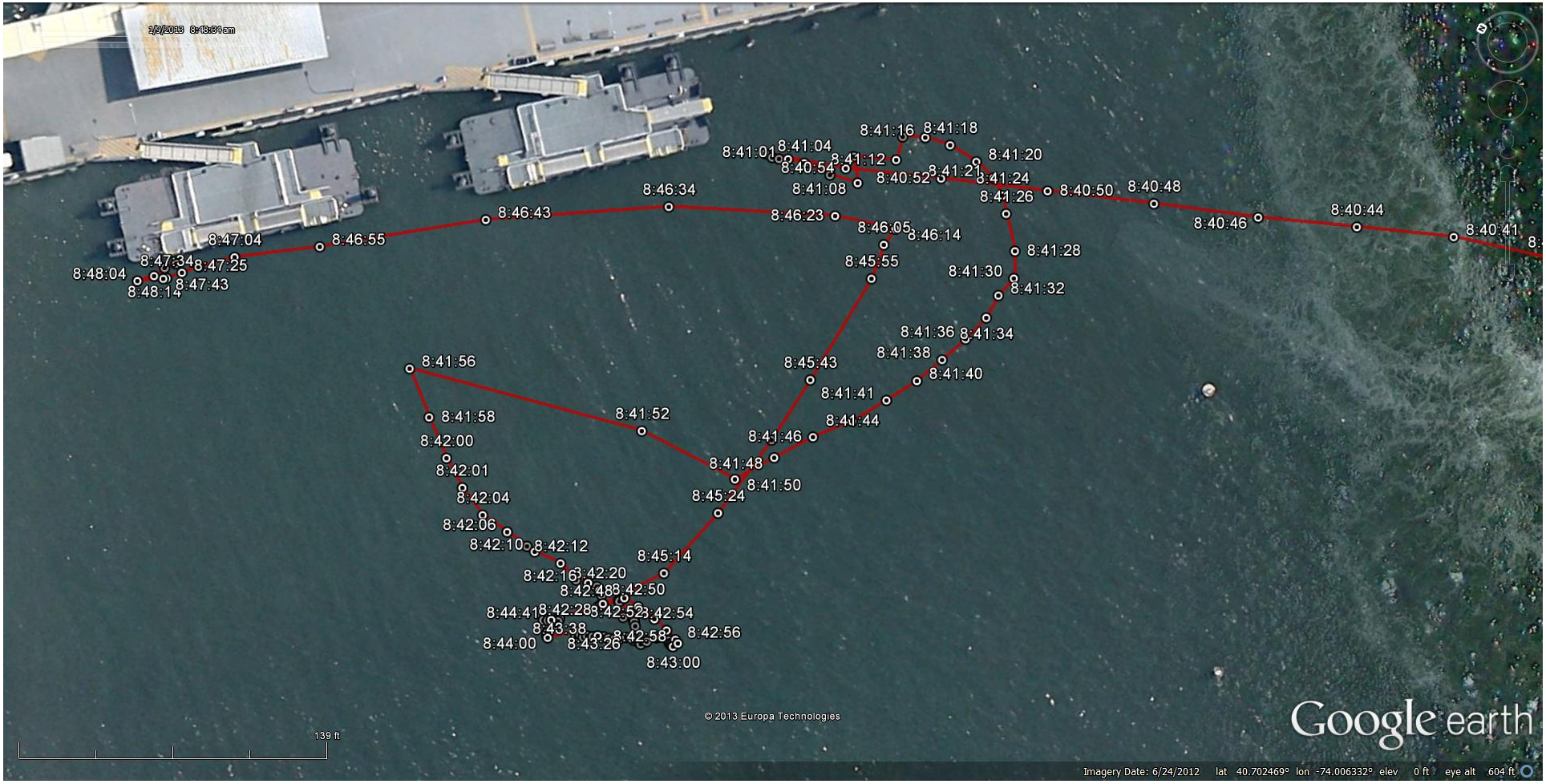

Figure 3. AIS data showing last 7 minutes of the accident voyage.

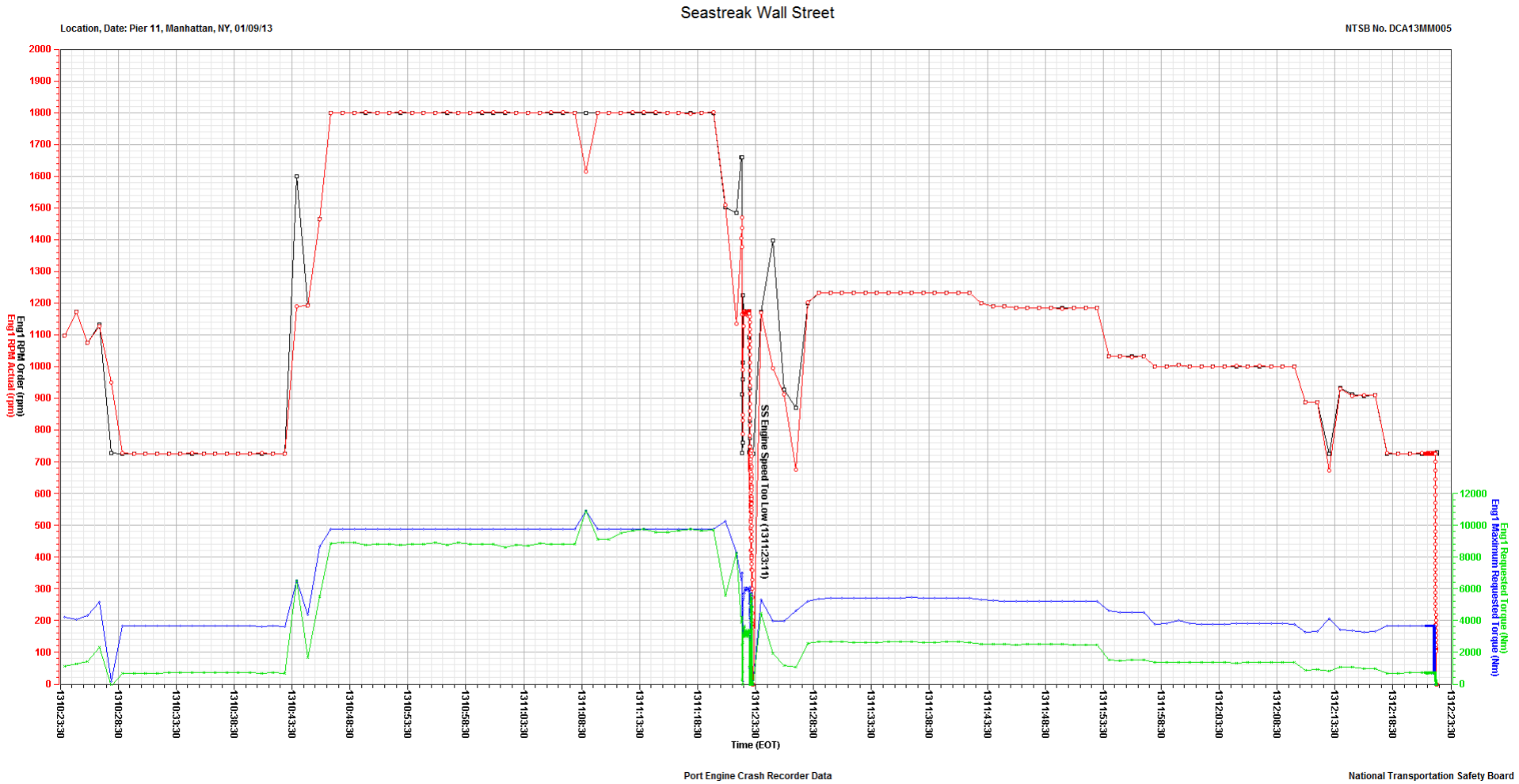

Figure 4. RPM data from port engine crash recorder.

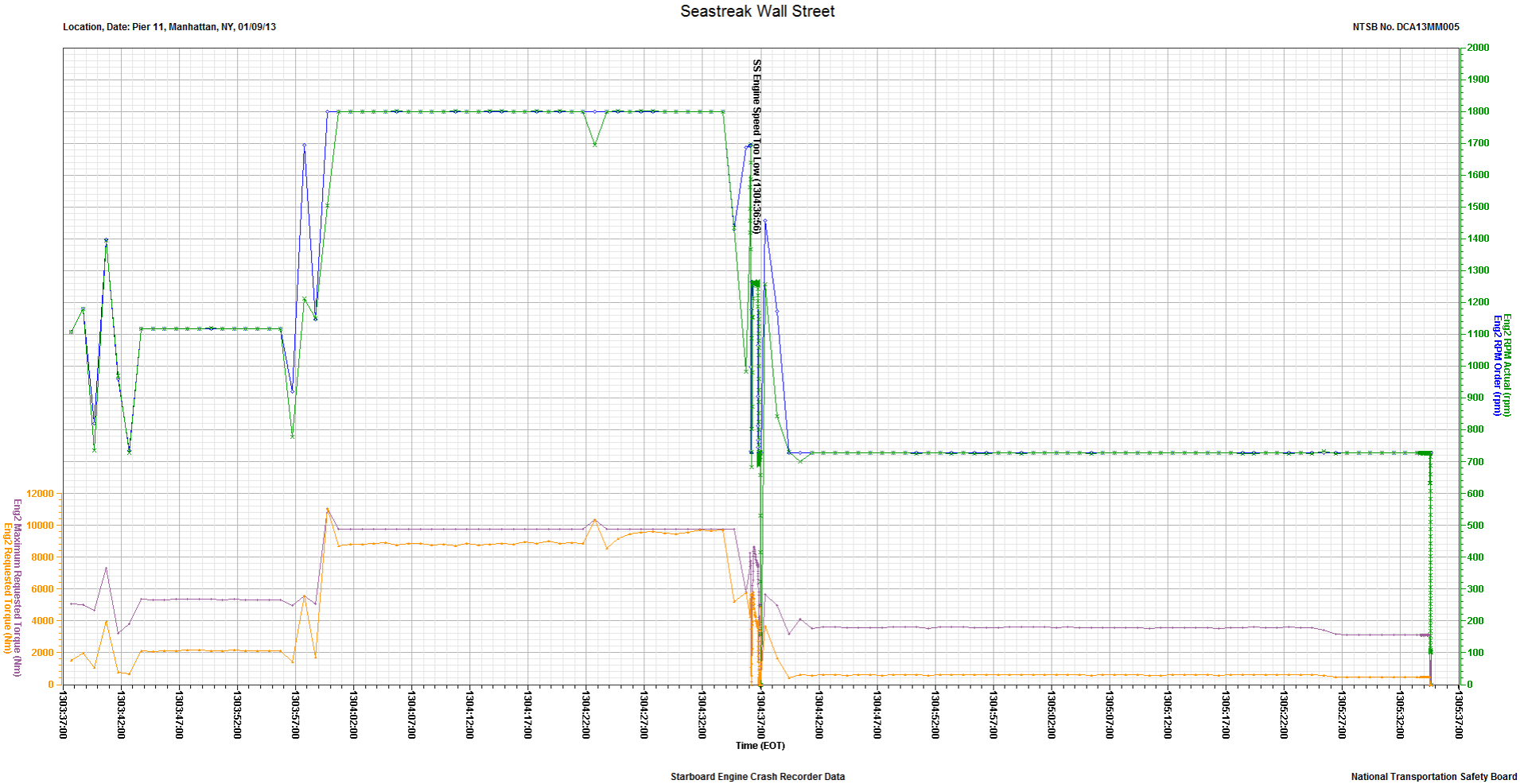

Figure 5. RPM data from port engine crash recorder.

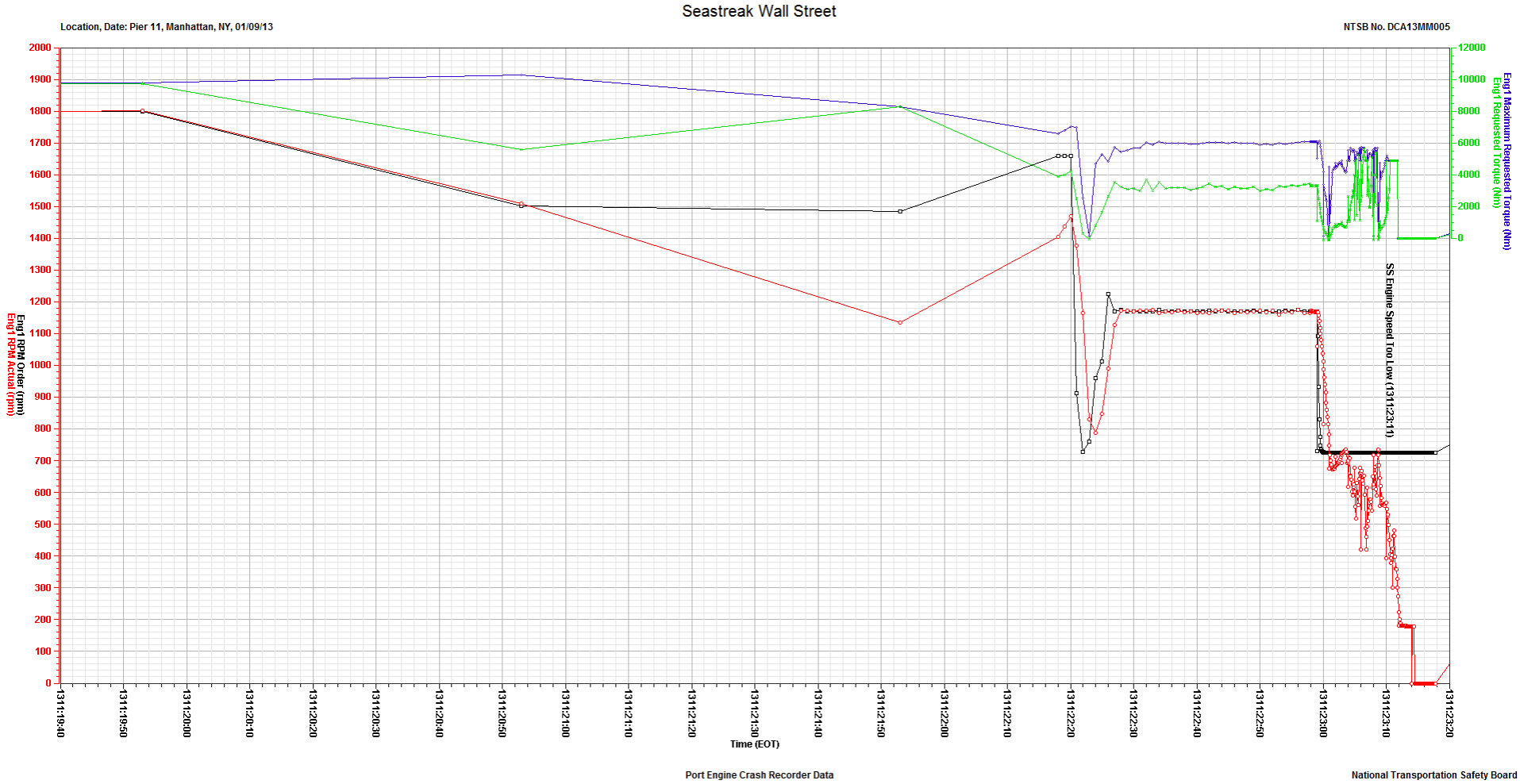

Figure 6. RPM data from port engine surrounding time of accident.

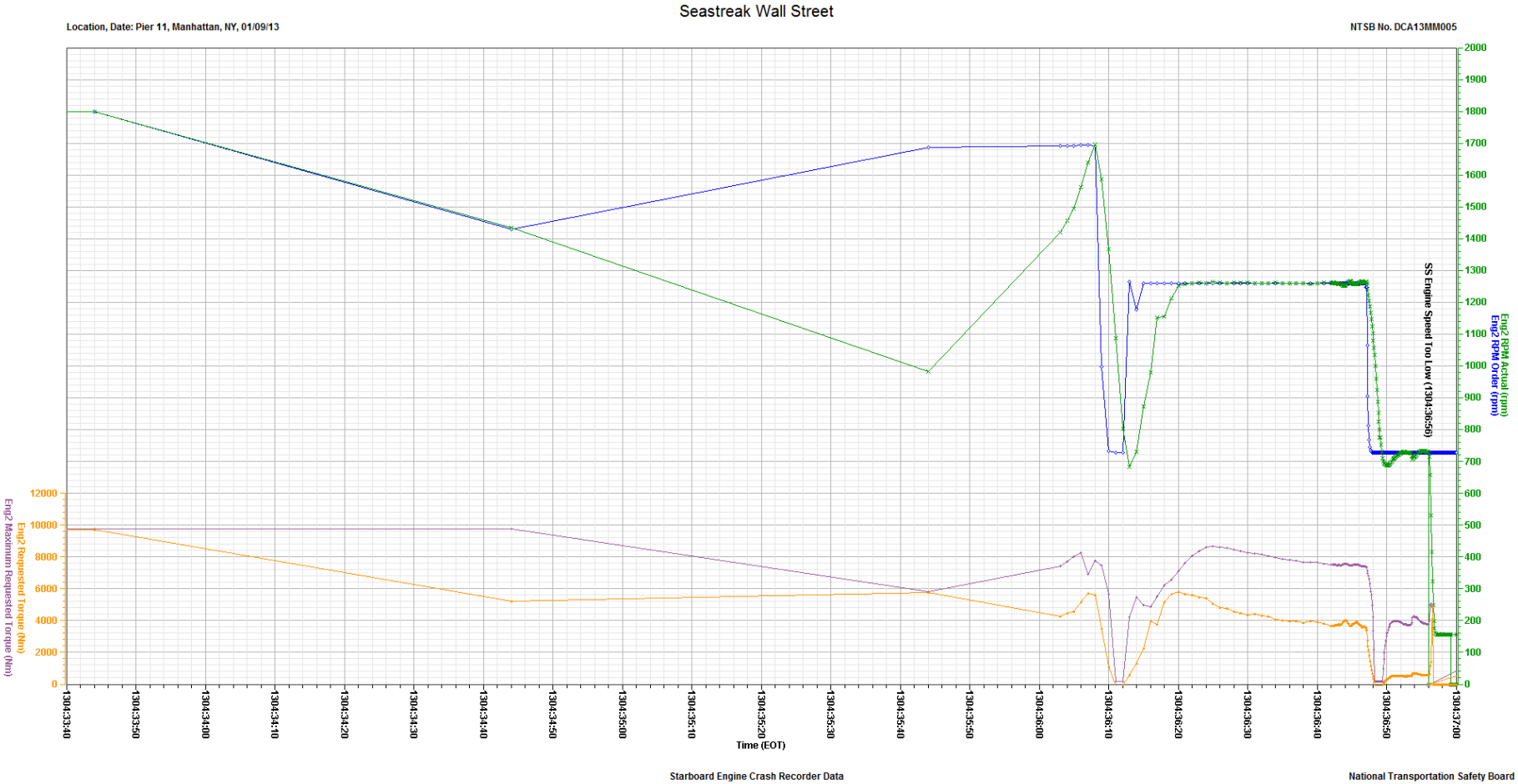

Figure 7. RPM data from starboard engine crash recorder surrounding time of accident.

Receiving Station Timestamp	Transmitted Message Timestamp	Offset
14:30:09	5	4
14:30:20	15	5
14:30:25	24	1
14:30:36	35	1
14:30:47	45	2
14:30:56	54	2
14:31:08	5	3
14:31:19	15	4
14:31:24	24	0
14:31:35	35	0
14:31:44	45	-1
14:31:50	54	-4

Figure 8. Comparison of timestamp between transmitted and received AIS message (example).

Receiving Station Timestamp	Transmitted Message Timestamp	Rebuilt Timestamp
14:30:09	5	14:30:05
14:30:20	15	14:30:15
14:30:25	24	14:30:24
14:30:36	35	14:30:35
14:30:47	45	14:30:45
14:30:56	54	14:30:54
14:31:08	5	14:31:05
14:31:19	15	14:31:15
14:31:24	24	14:31:24
14:31:35	35	14:31:35
14:31:44	45	14:31:45
14:31:50	54	14:31:54

Figure 9. Rebuilt timestamp for AIS message (example).