

1 **National Transportation Safety Board**

2 Office of Marine Safety
3 Washington, D.C. 20594



15 **Investigator-in-Charge's Factual Report**

16 Grounding of Container Vessel *New Delhi Express*
17 April 15, 2006

18
19 DCA-06-MF-013
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21

22 **Accident Description**

23 On the morning of April 15, 2006, after a transatlantic voyage which began on
24 April 8 at the port of Gibraltar, the Hong Kong-flag container-ship *New Delhi Express*
25 (see the figure) approached the waters off New York Harbor. The vessel was bound for
26 Port Newark, New Jersey, to discharge and load containers at pier 59.

27 The vessel arrived at the entrance to New York harbor at about 0200. The Sandy
28 Hook pilot¹ boarded the *New Delhi Express* at 0210 and at 0216, the master and pilot
29 conducted a master/pilot exchange of information.² The pilot then assumed navigational
30 control of the vessel. The vessel continued inbound toward the Verrazano Narrows

¹ Foreign vessels entering or departing the Port of New York and New Jersey must employ a pilot licensed by the states of New York or New Jersey. Pilots and pilot boats for vessels entering New York Harbor are provided by the United New York and New Jersey Sandy Hook Pilots Association.

² As required by the vessel's safety management system under the International Safety Management Code.

- 1 Bridge and the lower bay of New York Harbor. The weather was calm and visibility was
- 2 fair to poor in passing fog patches.



3

4

Figure. The *New Delhi Express*.

5 The vessel reduced speed in the lower bay to about 6 knots to board the docking
6 master for the inbound transit to Port Newark. At approximately 0342, in the vicinity of
7 buoy 22, the tug *Miriam Moran* came alongside to embark the docking master onto the
8 *New Delhi Express*. Two tugs (*Miriam Moran* and *Kimberly Turecamo*) had been
9 ordered for the transit through the Kill Van Kull and into Newark Bay. The docking
10 master made his way up eight decks to the bridge on the vessel's elevator, accompanied
11 by one of the ship's crew. Upon entering the bridge, the docking master greeted the
12 Sandy Hook pilot and the two conducted a pilot-to-pilot exchange, whereupon the

1 docking master assumed navigational control of the vessel from the Sandy Hook pilot.
2 The master of the *New Delhi Express* witnessed the exchange.

3 The vessel had continued its inbound transit and was now nearing the part of the
4 waterway known as the “Conhook” Reach (Constable Hook Reach). In his interview, the
5 docking master stated he took the conn of the *New Delhi Express* while it was on course
6 with the Conhook range dead ahead. The docking master had navigational control of the
7 vessel as it departed the waters of the upper bay of New York harbor and entered the
8 waterway known as the Kill Van Kull. His duties were to guide the vessel through the
9 waters of the Kill Van Kull, around the turn at Bergen Point up into Newark Bay, and
10 then to the vessel’s intended berth at pier 59. The docking pilot would accomplish this
11 by issuing steering and engine orders to the vessel’s bridge team. Additionally, the
12 docking pilot maintained radio contact with the assisting tugs and ordered them to either
13 secure lines to the vessel or lay alongside and assist in the maneuvering of the vessel by
14 having them push or pull when instructed.

15 The Sandy Hook Pilot remained on the bridge and in his words, “Assisted
16 depending on the situation, depending on the traffic and the visibility, usually basically
17 it’s just a matter of maybe monitoring, you know, radio calls for him, trying to help him
18 out with the radio calls because of the increased traffic within the Kills. In this case,
19 because of the visibility, it’s a matter of trying to help without getting in the way, you
20 know, we work on the assumption that four eyes are better than two and that any
21 assistance I can give or the Docking Pilot will ask for, I will provide.” Additionally, the
22 Sandy Hook Pilot stated, “Legally, I’m responsible for the ship from sea to dock and
23 dock to sea.”

1 As the *New Delhi Express* entered the Kill Van Kull, the bridge team was made
2 up of the two local pilots, the master of *New Delhi Express*, a second mate, and a
3 helmsman. The master of the *New Delhi Express* maintained overall command of and
4 responsibility for the vessel. The second mate was stationed at the telegraph³ to relay or
5 ring up engine orders from the pilot and to supervise the helmsman and ensure that he
6 followed the correct steering orders as they were issued from the pilot. The second mate
7 also kept and updated the logbook by writing in notable land or navigation marks during
8 the vessel's transit to its berth. The helmsman was at the steering station and responded
9 to the orders given by the docking pilot by turning the wheel left or right and to the
10 degree of the order given.

11 In the docking pilot's estimation, visibility was good as they proceeded into the
12 Kill Van Kull. Previously, during boarding there were noticeable pockets of fog in the
13 upper bay. As the vessel proceeded westbound, the docking pilot asked for and received
14 visibility reports over the VHF radio. The reports indicated a significant reduction in
15 visibility in the vicinity of the Bayonne Bridge and into Newark Bay. The docking pilot
16 called his office and ordered an additional tug due to the decreasing visibility. After
17 receiving acknowledgement that an additional tug (*Turecamo Girls*) would be available,
18 the docking pilot told the tugboat office they were at Coastal and "he [meaning the tug]
19 could drift out this way."

20 The *New Delhi Express* continued along westbound through the Kill Van Kull.
21 The tug *Miriam Moran* was on the vessel's starboard bow with one line secured, and the

³ A device with a lever for transmitting and acknowledging orders for engine movements.

1 *Kimberly Turecamo* was following closely by on the vessel's starboard quarter. The ship
2 was on a slow ahead bell and making approximately 6 knots.

3 Various commands from the docking pilot to the vessel's bridge team were given
4 and answered appropriately during the transit. Over the VDR (vessel data recorder), the
5 orders and the responses from the helmsman controlling the rudder and the second officer
6 manning the engine order telegraph can be clearly heard. Directions to the tugs from the
7 docking pilot can also be heard, along with their responses.

8 When the docking pilot contacts the third tug (*Turecamo Girls*), he asks the
9 tugmaster for their position and he responds that he is just coming out of the yard and
10 asks, "Is that you going by?" The docking pilot responds, "Yeah, that's me going by."
11 The docking pilot immediately orders stop engines and says, "Just for a minute we will
12 get her down to about 4 knots." The reply is followed quickly by the stop bell, indicating
13 that he has overshot the tug's position and would have liked to have the tug alongside
14 him sooner. The docking pilot had given the tug a position order, "You will be on the
15 port bow with a rope," before it left the boatyard. No response was heard from the tug.

16 All of this was occurring in the Bergen Point East Reach before buoy 10. The
17 *New Delhi Express* was slowing to 4 knots at buoy 10 and the patchy fog had turned to
18 zero visibility.

19 The master of the *New Delhi Express* was monitoring the vessel's progress on the
20 starboard radar. The docking master had positioned himself at the port radar, and
21 according to his statement, the Sandy Hook pilot was moving between the port radar with
22 the docking master and his laptop display, which he had set up on the forward bridge rail
23 in front of and a little to the left of the port radar.

1 Conversation was casual and minimal between the two pilots and nearly
2 nonexistent between the pilots and the bridge team except for giving and acknowledging
3 orders. The docking pilot called the lead tug (*Miriam Moran*) on the vessel's starboard
4 bow for a visual check on the vessel's position. The tugmaster's response was, "It looks
5 like you are right in the middle of the channel." The docking pilot then, after trying to
6 identify contacts on the radar, asked the Sandy Hook pilot, "What do you think, a little
7 right?" and was answered with, "Yeah, got to come right."

8 The docking pilot attempted to maneuver the vessel between the dredge/drill boat
9 in the middle to south side of the channel and Bergen Point and buoy 14 to the right or
10 north side of the channel.⁴ Immediately after the Sandy Hook pilot's response, the
11 docking pilot ordered starboard 20. He then asked the upcoming third tug (*Turecamo*
12 *Girls*), located on the vessel's port bow, "Do you see anything?" The response from the
13 tugmaster was, "I don't see a chock here." The reference to the chock indicates that the
14 tugmaster was looking for a place to put a line on the vessel. The docking pilot
15 responded to the tugmaster by telling him, "I am looking for anything you can see, I'm at
16 zero here."

17 The docking pilot now asked the forward tug, "How we looking?" The lead tug
18 on the vessel's starboard bow responded with, "Still looking good you know, you're a
19 little bit right of the middle of the channel but..." The docking pilot now asked the
20 Sandy Hook pilot, "What do you think, come right?" The Sandy Hook pilot responded,
21 "Wait until you get under the bridge then you can start coming right." The docking pilot
22 can then be heard starting a sentence with "I'm still..." then the steering order

⁴ An ongoing U.S. Army Corps of Engineers project to deepen the channels in New York Harbor to accommodate deeper-draft vessels required the presence of dredges or drill boats in the Kill Van Kull, including one near buoy 14.

1midship.” The tug on the starboard bow called the docking pilot. Its first broadcast
2 was unintelligible and the docking pilot asked him to repeat. The tugmaster stated, “I
3 think you are too far right. I’m seeing the red side of the bridge here.” The Sandy Hook
4 pilot said, “Yeah, you want to come left a little bit here.” The docking pilot immediately
5 ordered “port 20.”

6 Once the forward starboard tug (*Miriam Moran*) gave the warning that he was
7 looking straight out at the buoy, the docking pilot started issuing orders to avoid the close
8 quarters situation with the buoy. The docking pilot ordered hard to port with the ship’s
9 wheel and had the *Miriam Moran* push the vessel away from the buoy. He also asked the
10 *Turecamo Girls* on the port bow to go half astern, but the tug did not have a line on the
11 *New Delhi Express*.

12 At this point, the Sandy Hook pilot was on the starboard bridge wing shouting
13 distances off the buoy to the docking pilot. The forward starboard tug was telling the
14 docking pilot things were “getting better all the time.” The Sandy Hook pilot estimated
15 that the vessel passed the buoy within about 50 feet of its starboard side. Shortly after
16 this, with the vessel’s bow swinging to the left back into the channel, the *New Delhi*
17 *Express* started taking on a starboard list. None of the bridge team, including the pilots,
18 even felt the vessel touch the ledge. But quickly after the list was noticed, it increased to
19 approximately 10 degrees to starboard. The pilots continued to maneuver the vessel
20 away from the ledge and back into the deeper water. However, the vessel was now holed
21 in the No. 4 fuel oil tank and No. 5 water ballast tank and was taking on water. The
22 increased weight in the empty fuel oil tank and the 10 degree list to starboard caused the
23 vessel to come to rest on the bottom in the center of the Bergen Point West Reach.

1 The pilots notified the vessel behind them along with other appropriate authorities
2 and the vessel's crew set about reducing the vessel's list by pumping ballast into the port
3 side tanks. Additional tugs were called to stand by until the vessel could be moved again.
4 Relief pilots boarded the vessel, and the two pilots of record left the vessel to submit
5 statements of the incident and to mandatory drug and alcohol testing. The vessel later
6 refloated on the incoming tide at approximately 0630, and by 0800 the vessel had docked
7 at berth 86, where the *New Delhi Express* was boarded by United States Coast Guard
8 personnel and an investigation into the incident began.

9 **Pilot Information**

10 The pilots aboard the *New Delhi Express* were a mandatory addition to vessel as it
11 made its way into New York Harbor, employed as experienced navigators to assist the
12 vessel in maneuvering the ship in that specific area. The master of the *New Delhi Express*
13 and his officers provided the knowledge, familiarity, and handling characteristics of the
14 vessel to the pilots.

15 In a statement found on the website of the American Pilots' Association, of which
16 the United New York and New Jersey Sandy Hook Pilots Association is a member, "The
17 navigation of a vessel in U.S. pilotage waters is considered to be a shared responsibility
18 between the pilot and the master/bridge crew. The compulsory state pilot directs the
19 navigation of the vessel subject to the master's overall command of the vessel and the
20 ultimate responsibility for its safety. The master has the right, and in fact the duty, to
21 intervene or to displace the pilot in circumstances where the pilot is manifestly
22 incompetent or incapacitated or the vessel is in immediate danger due to the pilot's
23 actions. With that limited exception, U.S. law (as well as international law) requires the

1 master and/or the officer in charge of the watch to “cooperate closely with the pilot and
2 maintain an accurate check on the ship’s position and movement.”

3 The Sandy Hook pilot held both a U.S. Coast Guard first-class pilot’s license and
4 a New York state pilot’s license and was a member of the United New York and New
5 Jersey Sandy Hook Pilots Association. He had piloted another ship the evening before the
6 accident but had been off work most of the two previous days and told investigators that
7 he was well-rested when he boarded the *New Delhi Express*.

8 The docking pilot, a 1978 graduate of the U.S. Merchant Marine Academy, had
9 worked as a docking pilot in New York Harbor since 1989. He was licensed by the Coast
10 Guard as a master of oceangoing vessels (not more than 1,600 gross tons domestic or
11 3,000 gross tons international), as a third mate on oceangoing vessels, and as a first-class
12 pilot in New York Harbor and nearby sounds and rivers. He also held a New Jersey state
13 docking pilot’s license for the Port of New York and New Jersey and was a member of
14 the Metro Pilots Association. He had received radar and bridge management training. He
15 had been on duty the day before the accident but was not called into work and had been
16 off work for 2 days before that. He was sleeping in the pilots’ trailer at the tugboat yard
17 on Staten Island when called for work on the *New Delhi Express*.

18 **Vessel Information**

19 The *New Delhi Express* was built in 2005 and was registered in Hong Kong. It
20 was owned by Seaspan Ship Management Ltd., Vancouver, British Columbia, Canada.

21 Vessel particulars are as follows:

| | | |
|----|------------------|---------|
| 22 | Official number: | HK-1610 |
| 23 | IMO number: | 9301770 |
| 24 | Gross tonnage | 39,941 |

| | | |
|---|------------|------------|
| 1 | Length | 853 feet |
| 2 | Beam | 105.8 feet |
| 3 | Draft | 39.0 feet |
| 4 | Engine | MAN B&W |
| 5 | Horsepower | 49,680 |
| 6 | Speed | 24.5 knots |
| 7 | Crew | 22 |

8 **Waterway Information**

9 New York Harbor is the principal entrance by water to New York City and the
10 surrounding ports. The harbor is divided by the Narrows⁵ into the Lower Bay and Upper
11 Bay. The Battery, the southern tip of Manhattan, is at the junction of East River and
12 Hudson River.

13 The Kill Van Kull waterway separates the southern shore of Bayonne, New
14 Jersey, from Staten Island and connects the Upper Bay of New York Harbor with Newark
15 Bay and Arthur Kill. The transit through the Kill Van Kull, after leaving the Upper Bay,
16 begins just east of Constable Hook, Bayonne, and continues west for 3.75 miles to buoy
17 14 at Bergen Point, just west of the Bayonne Bridge. The bridge spans the width
18 (approximately 370 yards) of the navigable channel of the Kill Van Kull between
19 Bayonne and Staten Island. The bridge has a minimum clearance of 138 feet over the
20 channel (151 feet at the centerline). Depth through the Kill Van Kull is 45 feet at mean
21 lower low water (average of all lowest water levels for tidal days over a period of usually
22 19 years). The mean range of tide in the Kill Van Kull is 4.5 feet.⁶

23 **Buoy Information**

⁵ The Narrows connects the Lower Bay and Upper Bay of New York Harbor and has a clear width of over 0.6 mile at its narrowest point between Fort Wadsworth (Staten Island) and Fort Hamilton (Brooklyn). *United States Coast Pilot*, vol. 2, 34th edition, 2005.

⁶ *United States Coast Pilot*, vol. 2, pp. 384-385.

1 Buoy 14 marks the northern limits of the Bergen Point West Reach at the turn
2 around Bergen Point into Newark Bay and is intended to mark the limit of navigable
3 water beside a submerged ledge where the water is 20 feet deep or less. During the
4 ongoing dredging project in the Kill Van Kull, the buoy had been relocated numerous
5 times to accommodate both the dredging operations and waterway traffic. I

6 After the accident, on April 15, 2006, the Coast Guard conducted a routine
7 position check of the buoys in the immediate vicinity of the accident, as is their standard
8 procedure. All aids were reported to be functioning properly. A review of the data,
9 however, revealed that the 14 buoy was positioned in only 28 feet of water, whereas it had
10 been intended to be placed in 50 feet of water, marking the edge of the navigable channel.
11 Further review indicated the position data might be in error. Due to the new information
12 regarding buoy data in the vicinity of the accident, the Coast Guard asked the National
13 Transportation Safety Board to take the lead in the investigation.

14 On Monday, April 24, 2006, a Safety Board investigator boarded the Coast Guard
15 cutter *Katherine Walker* (WLM 552) to observe another position check of buoy 14. The
16 buoy, now 9 days after the accident, was found to be in position latitude 40° 38' 34.836"
17 and longitude 74° 08' 40.967" in approximately 28 feet of water corrected to datum
18 (mean low water). The moorings⁷ were fouled by what appeared to be wreckage from
19 the previous Kill Van Kull light tower 14. The buoy was then redeployed in 56 feet of
20 water at position latitude 40° 38' 33.990" and longitude 74° 08' 41.280," was about 26
21 yards to the south of its previous position.

⁷ Chain connected to an anchor (5,000 lb) to keep buoy in position.

1 During the recovery of the moorings for buoy 14, the *Katherine Walker* hauled
2 aboard 90 feet of chain, measured from the base of the buoy to the top of the clump
3 anchor pad eye.⁸ According to Coast Guard personnel on board the *Katherine Walker*, the
4 standard rigging for buoys usually includes 10 to 15 feet of chain beyond what is required
5 by the water depth. Sometimes enough chain is deployed so that it has enough slack to be
6 brought on board the buoy tender for maintenance without disturbing the anchor,
7 although that is less of a consideration in modern buoy operations that use precise
8 navigation fixing via satellite and highly maneuverable vessels with exact station-keeping
9 abilities. When buoy 14 was originally deployed, the chain-to-depth ratio would have
10 been 3:1, which would have allowed the buoy to float freely with the changing current,
11 defining a large watch circle.

12 The vessels operating and navigating around Bergen Point up to Newark Bay, due
13 to their extensive draft,⁹ specifically the *New Delhi Express*, can only operate in the
14 “good [navigable] water” of the Kill Van Kull. Coast Guard instructional manuals direct
15 that “the aid MUST mark the depth of water appropriate to the waterway. Ensuring that
16 an aid reasonably marks “good” water is of more importance than ensuring that the aid
17 marks a precise geographical position.” Additional instructions indicate, “ A sounding
18 MUST be taken each time a buoy is positioned.”¹⁰

19
20 In discussions with Coast Guard personnel, it was suggested that during one of the
21 several moves to accommodate the dredging operation, old data had probably been

⁸ A fitting having one or more eyes or rings to which a block, wire rope, chain or line can be secured.

⁹ The vertical distance measured from the lowest point of a ship’s hull to the waterline.

¹⁰ United States Coast Guard, “Aids to Navigation Manual, Positioning,” Commandant Instruction M16500.1C (Washington, DC: U.S. Department of Transportation, March 26, 1996).

1 erroneously entered into the buoy position database, and the ATON (aid to navigation)
2 was deployed by the Coast Guard buoy tender in the wrong position. Subsequent
3 position checks were also compromised by the erroneous data sheet.

4 No report had ever been made to the Coast Guard of any observed discrepancies
5 with regard to the position of buoy 14. With dozens of movements of ship traffic every
6 day past buoy 14 at Bergen Point not one report, phone call, radio broadcast or other
7 communication was made by to the Coast Guard by either pilots, tug and barge traffic,
8 pleasure craft or any other commercial vessel that had passed buoy 14's position and
9 noted any problems or misplacement.

10 **Damage**

11 *New Delhi Express*. The majority of the serious damage was located between
12 frames 132 through frames 165, or approximately 85 feet along the starboard side at the
13 turn of the bilge.¹¹ The accident caused a portion of the vessel's bilge keel¹² to be
14 displaced. The No. 4 heavy fuel oil tank and the No. 5 water ballast wing tank were both
15 breached as a result of the contact with the submerged ledge. The fuel oil tank was
16 empty at the time of the accident, so no oil was released into the water. A residual
17 amount of unpumpable oil was removed during the drydocking before repairs began. The
18 owner of the vessel estimated costs for repairs at \$1.5 million. The shipyard used
19 approximately 52 tons of steel to repair the damage.

20 **Tugboats.** Two tugboats were damaged during the accident. Those were the two
21 inshore vessels that were assisting the *New Delhi Express* on her starboard side. At the

¹¹ Curved portion of ship's bottom where it turns from horizontal to the vertical, or nearly so.

¹² Either of two beams or fins fastened lengthwise along the outside of a ship's bilge to inhibit heavy rolling.

1 time of the accident, both vessels, the *Miriam Moran*, which was on the *New Delhi*
2 *Express*'s starboard bow and the *Kimberly Turecamo*, which was on the starboard quarter
3 (or starboard stern), incurred hull and propeller damage. The damage costs were \$83,000
4 for the *Miriam Moran* and \$35,000 for the *Kimberly Turecamo*.

5 **Medical and Pathological Information**

6 Postaccident drug and alcohol testing was performed on all personnel who were
7 on the bridge of the *New Delhi Express* at the time of the accident. All results were
8 negative. Additional drug and alcohol testing was performed on the crew of the tugboats
9 that incurred damage while assisting the *New Delhi Express*. Again, test results were
10 negative for drugs and alcohol.