

# **National Transportation Safety Board**

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**Deborah A.P. Hersman  
Chairman**

**Testimony of the Honorable Deborah A.P. Hersman  
Chairman  
National Transportation Safety Board  
Before the  
Committee on Transportation and Infrastructure  
United States House of Representatives  
Hearing on  
Enbridge Pipeline Oil Spill in Marshall, MI  
Washington, DC  
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Chairman Oberstar, Ranking Member Mica, members of the House Committee on Transportation and Infrastructure, thank you for inviting me to appear before you today.

As you know, the National Transportation Safety Board is charged with determining the probable cause of transportation accidents and making recommendations to help prevent similar accidents from occurring in the future. These are the goals for our ongoing investigation into the recent pipeline rupture and oil spill near Marshall, Michigan.

The accident pipeline – line 6B -- is owned and operated by Enbridge Energy Partners. It extends approximately 300 miles from Griffith, Indiana to Sarnia, Ontario, Canada. Line 6B is a portion of Enbridge's 1,900 mile Lakehead System pipeline. Enbridge's operational control center for line 6B and its other pipeline systems is located in Edmonton, Alberta.

First, I would like to comment about the events beginning in the late afternoon of Sunday, July 25. Enbridge scheduled to take the thirty-inch diameter pipeline offline (stop pumping oil through the pipeline) at 6 pm on July 25, and planned to restart the pipeline at 4 am on Monday, July 26. Enbridge scheduled the 10-hour shutdown due to delivery schedules that precluded certain facilities on the system from accepting oil.

At 5:58 pm on Sunday, July 25, the pipeline controller in Edmonton was in the process of taking the pipeline offline and had stopped the pumps at four pump stations from Griffith, the pipeline origin, through Mendon, about 30 miles upstream from the Marshall pump station. Also at 5:58 pm, an alarm was triggered by an abrupt drop in pressure in the pipeline at the Marshall pump station, and as a result, the pumps at Marshall were automatically stopped.

At 6:03 pm, the Edmonton control center received a volume balance alarm indicating a discrepancy between the volume of oil entering the pipeline and the volume of oil exiting the pipeline. Control room analysts believed volume balance alarms to be caused by "column separation," which indicates a space between two batches or columns of crude oil within the pipeline. (For optimum operation of the pipeline, the controllers strive to maintain a continuous flow of product through the entire pipeline.) Controllers and analysts at the control center believed the column separation condition would be present until the pipeline was restarted at 4 am.

At 9:25 pm, on Sunday, July 25, the first 9-1-1 call arrived at the Calhoun County Dispatch Center with complaints of a strong odor of natural gas or crude oil. Between 9:25 pm and 11:33 pm, three additional 9-1-1 calls were received reporting natural gas fumes, propane gas odors, and a natural gas leak. Fire fighters were dispatched, but found no natural gas leaks. Michigan Gas also dispatched a service technician during this time to a residence to investigate complaints of natural gas odors. The Michigan Gas technician found no leaks of natural gas but noted on his service report that he smelled petroleum odors.

During the early morning hours of Monday, July 26<sup>th</sup>, Line 6B was restarted and shut down twice. Following the scheduled start-up of the pipeline at 4 am and a second start-up at 7:10 am, controllers received multiple volume balance alarms. By 7:55 am, the pipeline was stopped for the final time after controllers and analysts at the Enbridge control center were unable to resolve the volume balance alarms.

At 9:49 am, the control center directed a technician onsite in Marshall to inspect the Marshall pump station and general vicinity for leaks. The technician went to the enclosed pump station facility, found no leaks, and did not investigate further. He detected no odors, including driving to and from the pump station. (He stated that he kept the windows in his truck closed.) About an hour and a half later, at 11:18 am, the Edmonton control center received a call from a Consumers Energy service technician who was responding to reports of natural gas odors in the vicinity. The Consumers Energy technician reported an oil leak, which was confirmed by a second Enbridge onsite technician at 11:45 am. At 1:29 pm, the National Response Center reported an oil release.

National Transportation Safety Board investigators arrived on scene the next day, Tuesday, July 27<sup>th</sup>. They found an extremely challenging investigative terrain. The section of pipeline that ruptured was located in a swampy, wetland area, which was further saturated by the volume of oil that had spilled. As a result, the process of excavating the ruptured pipeline took nearly two weeks. However, the NTSB was ultimately able to transport 2 sections of pipe, each exceeding 20 feet in length, from the accident site to our Training Center in Ashburn, Virginia. The pipe sections arrived at the Training Center on August 8<sup>th</sup>.

We are still in the very early stages of our investigation. However, I am able to report that we are making significant progress. So far, the NTSB investigators have:

- completed documentation of the coating system on the ruptured pipe piece and second pipe piece;
- removed the coating and documented the corrosion on the exterior surface of the accident pipe piece and the second pipe piece;
- prepared selected areas of the exterior surface of the ruptured and second pipe pieces for nondestructive testing;
- completed nondestructive testing of the ruptured pipe piece and found surface cracks and indications of corrosion;

- conducted additional nondestructive testing on the ruptured pipe piece and the second pipe piece, and
- taken four samples from the ruptured pipe and one sample from the second pipe and transported these to the NTSB Headquarters Materials Laboratory.

During the week of September 7, an NTSB metallurgist prepared the samples for further examination and testing. The Materials group will begin its work at the NTSB Materials Laboratory next week to (1) conduct optical and scanning electron microscope analyses of the fracture surfaces of the rupture, (2) document the microstructure of the pipe metal, and (3) document the features of the surface cracks.

As is the case in all of our investigations, the NTSB will continue investigating the accident in order to provide a full report on the causes and actionable recommendations that will help prevent future similar accidents from taking place.

Although we have just begun our work in this pipeline rupture, we expect the investigation to focus on the following areas:

- **Supervisory Control and Data Acquisition (SCADA) data.** In 2005, the NTSB conducted a safety study on SCADA in Liquid Pipelines. Following this report, the Board issued Safety Recommendations P-05-1 through -3, which called on PHMSA to:
  - (1) require hazardous liquid pipeline operators to follow the American Petroleum Institute's recommended practice for the use of graphics on SCADA computer screens,
  - (2) require pipeline companies to have a policy for the review and audit of SCADA alarms, and
  - (3) require training for pipeline controllers to include simulator or non-computerized simulations for controller recognition of abnormal operating conditions, particularly leak events.

These three recommendations were also incorporated directly into the PIPES Act. PHMSA published a final rule on December 4, 2009 that included the recommended requirements and applied them to all pipeline systems. The control room operational data is complex and requires a thorough review for these requirements, especially on data from July 25 and 26.

- **Pipeline controller performance.** NTSB investigators are examining the work experience, health, work/rest schedule, qualification, training, and activities of each control room operator involved in the accident.
- **Operator notification and spill response.** The NTSB is gathering and evaluating information from interviews and electronic sources to further determine the timeline of events. This information will accurately reflect when the spill occurred, when notification was made, and how the operator responded.

- **Responses to 9-1-1 calls.** The team will review 9-1-1 records from Calhoun County and phone call records from local utilities and evaluate the response by first responders and local utilities to residents' complaints.
- **Inspection and Maintenance History.** The NTSB will review and evaluate the inspection and maintenance history of the operator, including but not limited to integrity management plans, risk-based programs, and cleaning history.
- **PHMSA Oversight Activities and Actions.** PHMSA, as the regulator, has a role in overseeing the integrity of the pipeline system and ensuring the safety of our national pipeline system. The NTSB will evaluate PHMSA's oversight of line 6B and this operator.

Naturally, we will allow the facts of our investigation to lead us to other areas if necessary; however, this should give the Committee a clear indication of our ongoing efforts.

Although many aspects of NTSB investigations are technical in nature, we are ever-cognizant of the collateral cost of accidents such as this. It is estimated that between 800,000 and 1 million gallons of oil spilled as a result of the Marshall pipeline rupture. The economic and environmental consequences of a spill of this magnitude are significant. Although we can't prevent accidents that have already occurred, by investing the time and resources to learn from what went wrong, we can help stop future accidents from ever taking place.

This concludes my testimony and I would be happy to answer any questions you may have.