



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: August 2, 2002

In reply refer to: P-02-01 and -02

Honorable Ellen G. Engleman
Administrator
Research and Special Programs Administration
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On the morning of April 7, 2000, the Piney Point Oil Pipeline system, which was owned by the Potomac Electric Power Company (Pepco), experienced a pipe failure at the Chalk Point Generating Station in southeastern Prince George's County, Maryland. The release was not discovered and addressed by the contract operating company, Support Terminal Services, Inc. (ST Services), until the late afternoon. Approximately 140,400 gallons of fuel oil were released into the surrounding wetlands and Swanson Creek and, subsequently, the Patuxent River as a result of the accident. No injuries were caused by the accident, which cost approximately \$71 million for environmental response and clean-up operations.¹

The National Transportation Safety Board determined that the probable cause of the April 7, 2000, Piney Point Oil Pipeline accident at the Pepco Chalk Point, Maryland, generating station was a fracture in a buckle in the pipe that was undiscovered because the data from an in-line inspection tool were interpreted inaccurately as representing a T-piece. Contributing to the magnitude of the fuel oil release were inadequate operating procedures and practices for monitoring the flow of fuel oil through the pipeline to ensure timely leak detection.

Among other issues, the investigation considered the sufficiency of the evaluation procedures for pipe wrinkles. After the accident, the Research and Special Programs Administration (RSPA) required Mirant Piney Point, LLP (Mirant), which became the pipeline's owner some months after the accident, to prepare an integrity study of the Piney Point Oil Pipeline before it would allow the pipeline to be returned to service. Data from the 1997 in-line inspection of the pipeline were compared to the actual geometry of various wrinkles in pipeline bends, obtained after excavating the most severe wrinkles and determining geometry by field measurements. After correlation between the in-line inspection data and the field measurements was completed, the 1997 in-line inspection data were used as the basis for the evaluation of wrinkles that had not been excavated and inspected. An analysis was performed to determine if identified wrinkles needed to be removed. As a result of this work, Mirant developed quantitative acceptance criteria for pipe wrinkles remaining in the pipeline. RSPA accepted the analysis that

¹ For additional information, see forthcoming Pipeline Accident Report—*Rupture of the Piney Point Oil Pipeline and Release of Fuel Oil near Chalk Point, Maryland, April 7, 2000* (NTSB/PAR-02/01).

indicated that some wrinkles could remain in the pipeline and allowed the pipeline to return to service.

Field bends containing wrinkles were installed in pipelines before the hazardous liquid pipeline safety regulations went into effect in 1970. Since then, pipeline regulations have prohibited the installation of pipe containing wrinkle bends during pipeline construction.² However, pipe wrinkles that were not discovered during the construction inspection process or that formed sometime after construction are still periodically found in pipelines.

According to RSPA's pipeline integrity management rule, when an in-line inspection tool is selected by a pipeline operator to assess the condition of the pipeline, it must be "capable of detecting corrosion and deformation anomalies including dents, gouges, and grooves" in high-consequence areas.³ The regulation states that "an operator must evaluate all anomalies and repair those anomalies that could reduce a pipeline's integrity."⁴ Although the language in this regulation does not specifically designate wrinkles as a category of deformation anomaly, when questioned by Safety Board staff, RSPA officials indicated that the regulation applies to wrinkles.

Wrinkles can sometimes be identified through the use of in-line inspection tools. However, operators do not have nationally recognized quantitative criteria with which to assess the effect of a specific wrinkle characteristic on a pipe or to determine whether a pipeline can be safely operated while it contains some wrinkles. Therefore, the Safety Board concluded that because pipeline operators have no nationally recognized criteria with which to evaluate pipe wrinkles, they may not be effectively determining whether pipe containing wrinkles should be allowed to remain in service. The Safety Board believes that RSPA should establish quantitative criteria, based on engineering evaluations, for determining whether a wrinkle may be allowed to remain in a pipeline.

The accident investigation also addressed the efficiency of the leak notification procedures used following the pipeline rupture. Once ST Services personnel confirmed that they had a leak, they began to initiate an emergency response. The emergency response was affected by several communications breakdowns. Pepco did not provide accurate information about the volume of the Chalk Point oil release to public agencies, nor did it ensure that its internal information exchanges were effectively coordinated. The failures left responders with inadequate information with which to evaluate the threat posed by the release.

In the case of the Chalk Point accident, the response of deploying booms initially contained the oil spill, despite failures to effectively notify responders about the scope of the accident and to inform local response agencies early in the response effort. However, in future incidents involving pipeline leaks, such notification errors could cause responders to fail to respond with the resources needed to deal with a release, which could have negative consequences.

² 49 *Code of Federal Regulations* (CFR) 195.212.

³ 49 CFR 195.452(c)(1)(i)(A).

⁴ 49 CFR 195.452(h)(1).

On the day of the accident, between 1538, when the pipeline was shut down, and 1850, when the National Response Center received notification of the Chalk Point spill, miscommunications and the creation of a release estimate lacking any factual basis took place among the various Pepco officials managing the release. By the time they shut down the pipeline, ST Services personnel were aware that they had a line balance discrepancy of about 3,000 barrels (126,000 gallons). Sometime before 1620, the ST Services assistant terminal manager told the Pepco engineering supervisor that the line balance discrepancy was about 3,000 barrels. The Pepco engineering supervisor informed the Pepco Chalk Point general supervisor for operations about the discrepancy at 1620, stating that it was about 2,000 to 3,000 barrels. At this time, the Pepco Chalk Point general supervisor for operations noted in his log that there was a discrepancy of 2,000 barrels.

About 1827, a still more significant error took place concerning the estimation of the size of the spill. The Pepco Chalk Point shift supervisor told the Pepco qualified individual (when pressed to provide an estimate) that the amount of the spill was “1,000 gallons, 2,000 gallons, [expletive] mess, tell them what you want.” This unfounded estimate was reported to the Pepco Chalk Point general supervisor for operations, who, in consultation with the Pepco senior environmental coordinator during a phone conversation, agreed to report a release of 2,000 gallons to the National Response Center and the Maryland Department of the Environment. About 1840, ST Services provided additional confirmation to the Pepco Chalk Point general supervisor that the line balance shortage was approximately 3,000 barrels (126,000 gallons). About 1850, the Pepco senior environmental coordinator called the National Response Center and reported a 2,000-gallon No. 2 fuel oil release from a pipeline at Pepco’s Chalk Point Generating Station, even though the Pepco Chalk Point general supervisor had updated information that the line balance shortage was actually about 3,000 barrels (126,000 gallons).

By 2015, the estimated release amount of 3,000 barrels (126,000 gallons) had been posted on the Chalk Point command center information blackboard. Shortly after 2100, the Pepco engineering group confirmed with line balance calculations that the amount of flushing oil involved in the release was 3,089 barrels (129,738 gallons).

Pepco officials could have updated the National Response Center when they learned that the information they had initially reported was inaccurate, but they did not. The Pepco senior environmental coordinator learned within 2 hours that the 2,000-gallon release estimate he had given the National Response Center did not approach the true magnitude of the release, but neither he nor any other Pepco manager updated the report. When asked why he never updated the National Response Center, the Pepco senior environmental coordinator said he believed that by 2130 on April 7, representatives of all the notified agencies were on the scene or were in contact with each other. In fact, the Environmental Protection Agency Federal On-Scene Coordinator was not advised of the revised spill estimate until she arrived at Chalk Point, at 1015 on April 8, about 13 hours after Pepco had confirmation that the likely size of the spill was 3,089 barrels (129,738 gallons). Thus, those oil spill responders who received notification from the National Response Center were not informed of the significant size of the product release and the spill’s potential impact on the environment until they arrived on the scene.

During a May 16, 2002, meeting between RSPA officials and Safety Board staff, RSPA officials stated that National Response Center notification reports are intended to provide responders, as quickly as possible, the information they need to activate appropriate resources to control, mitigate, and/or clean up a product spill. Emergency responders, as well as accident investigators, rely on the information provided by the National Response Center when preparing their response efforts. Inaccurate or incomplete information can hamper these activities. For instance, if the initial information reported erroneously indicates that the release is minor, some Government responders needed on the scene to carry out containment or mitigation efforts may decide not to respond to the accident. And if they do respond, they may not bring sufficient resources to manage the spill. For those Government agencies that send personnel to the accident, the National Response Center report may be the only information that the responders have before arriving on the scene. The more complete the information is, the better prepared Government responders will be to react to the particular circumstances of the accident.

In addition to the Chalk Point accident, the Safety Board is aware of other cases in which pipeline owners or operators reporting an incident to the National Response Center did not update their initial reports when more comprehensive and accurate information became available.⁵ The Safety Board concluded that because pipeline owners and operators sometimes do not update their initial reports to the National Response Center, the notifications provided to emergency responders may not always contain the complete and accurate information needed to develop an effective incident response. The Safety Board believes that RSPA should require pipeline owners and operators to provide follow-up telephone updates to the National Response Center when they discover that the information they initially reported contains significant errors or when they identify significant new information directly related to the reporting criteria.

Therefore, the National Transportation Safety Board makes the following safety recommendations to the Research and Special Programs Administration:

Establish quantitative criteria, based on engineering evaluations, for determining whether a wrinkle may be allowed to remain in a pipeline. (P-02-01)

Require pipeline owners and operators to provide follow-up telephone updates to the National Response Center when they discover that the information they initially reported contains significant errors or when they identify significant new information directly related to the reporting criteria. (P-02-02)

The Safety Board also issued one safety recommendation to the Environmental Protection Agency.

Please refer to Safety Recommendations P-02-01 and -02 in your reply. If you need additional information, you may call (202) 314-6177.

⁵ A March 30, 1998, accident in Sandy Springs, Georgia, that was originally reported to the National Response Center as a release of 150 gallons of gasoline was later found to be a release of over 15,800 gallons. An August 20, 2001, accident in Jackson County, Oklahoma, that was initially reported to the National Response Center as a release of 8,400 gallons of crude oil was later found to be a release of about 126,000 gallons.

Chairman BLAKEY, Vice Chairman CARMODY, and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in these recommendations.

Original Signed

By: Marion C. Blakey
Chairman