



Log # P-298F

National Transportation Safety Board

Washington, D.C. 20594
Safety Recommendation

Date: October 1, 1990

In reply refer to: P-90-39

Mr. Jerome J. McGrath
President
Interstate Natural Gas Association
of America
1660 L Street, N.W.
Washington, DC 20036

Mr. Robert Cave
Executive Director
American Public Gas Association
301 Maple Avenue West
Vienna, Virginia 22180

Mr. G. H. Lawrence
President
American Gas Association
1515 Wilson Boulevard
Arlington, Virginia 22209

Mr. Charles J. DiBona
President
American Petroleum Institute
1220 L Street, N.W.
Washington, DC 20037

On October 3, 1989, the United States fishing vessel NORTHUMBERLAND struck and ruptured a 16-inch-diameter natural gas transmission pipeline about 1/2 nautical mile offshore in the Gulf of Mexico, and about 5 1/3 nautical miles west of the jetties at the entrance to Sabine Pass, Texas. Natural gas under a pressure of 835 psig was released. An undetermined source on board the vessel ignited the gas, and within seconds, the entire vessel was engulfed in flames. The fire on the vessel burned itself out on October 4. Leaking gas from the pipeline also continued to burn until October 4. Of the 14 crewmembers, 11 died as a result of the accident.¹

When the accident occurred, the NORTHUMBERLAND was in shallow waters and close to shore, which was normal and usual for its trade. The water depth and the estimated draft of the vessel at the time of the accident were both about 10 feet. Consequently, the bottom of the vessel was close to the sea bottom or slightly penetrating the bottom when it struck the pipeline.

¹ Additional information is given in the accident report. (National Transportation Safety Board, 1990. Fire on board the F/V NORTHUMBERLAND and rupture of a natural gas transmission pipeline in the Gulf of Mexico near Sabine Pass, Texas, October 3, 1989. Pipeline Accident Report NTSB/PAR-90/02. Washington, DC.)

The pipeline, known as the High Island lateral pipeline, was not fully buried when it was struck by the NORTHUMBERLAND. Diving surveys conducted after the accident established that the unburied segments of the pipeline were not confined to a limited length, but extended for as much as 400 feet in the immediate accident area. The quantity and type of marine growth found on the pipeline indicated that the pipeline had been unburied for a prolonged period. Damage to the concrete coating also indicated that the pipeline had been previously struck by other vessels or equipment towed by vessels.

When constructed in 1973, the High Island pipeline was placed in the bottom of a trench. The cover, as indicated on the as-built construction plans, was the vertical distance from the level of the sea bottom down to the top of the pipeline; the cover, however, was not necessarily the same as the actual depth of the overburden (the sediment) that may have been over the pipeline.

The investigation revealed that the operator of the pipeline never inspected the pipeline after its construction to confirm that natural sedimentation had filled in the trench and had returned the sea bottom to its natural elevation; thus, it is not certain that the trench filled in and produced an overburden of the depth shown on the as-built construction plans and required by the right-of-way permit issued by the U. S. Army Corps of Engineers. Because the pipeline was supposed to have been buried at the time of construction but was unburied at the time of the accident, the Safety Board is concerned that other submerged pipelines may also be unburied and vulnerable to damage and rupture.

The operator acknowledged that it did not have a program of regular inspections of its offshore pipelines to determine if they were unburied or vulnerable to damage from surface vessels. Instead, the operator adopted a reactive policy of waiting until the operator was made aware of a hazardous condition before taking any remedial action, rather than an active policy of looking for hazardous conditions and correcting them before an accident occurred.

Federal regulations (49 CFR 192.613) require that each operator of a gas pipeline have a procedure for continuing surveillance to determine unusual operating and maintenance conditions. To have an effective procedure that will actually determine such conditions, an operator must regularly and actively inspect for these unusual conditions. Operators typically rely on aerial overflights to patrol their offshore pipelines. Although aerial overflights or surface patrols are useful to detect leaks, they do not, in the Safety Board's view, satisfy the needs for continuing surveillance required under section 192.613--to detect that a pipeline has become unburied and vulnerable to damage from surface vessels. Also, because the operator of the High Island pipeline did not inspect it, the operator did not maintain the pipeline as required by the permit issued by the Corps. The pipeline was exposed and vulnerable to damage from surface vessels because the operator did not have a program for continuing surveillance that incorporated regular inspections of the pipeline.

The presence of a submerged pipeline, whether it is offshore or passes under a river or other body of water, is not obvious to a vessel operator. Because submerged pipelines transport natural gas and hazardous liquids that can endanger life and property if released, pipeline operators have the primary responsibility to construct, maintain, and operate their pipelines in a manner that does not endanger the public. The Safety Board is concerned that the inspection and maintenance practices of the High Island pipeline operator are typical of other operators of submerged pipelines because of testimony provided by industry associations before the House Subcommittee on the Coast Guard and Navigation. Consequently, many other submerged pipelines may not have been adequately buried and may be similarly vulnerable to damage. Also, pipelines that were never required to be buried because of regulatory exemptions or grandfathering provisions are also likely to be vulnerable to damage. The majority of all submerged pipelines very likely have not been regularly inspected.

The Safety Board believes that the only reasonable long-term solution to minimize the hazard posed to mariners and the environment by unprotected submerged pipelines is to bury them where the depth of water is comparable to the drafts of surface vessels. The Safety Board also believes that the operators of all submerged pipelines should be required to conduct regular inspections that will ensure the pipelines remain buried and not become vulnerable to damage from surface vessels.

The Safety Board recognizes that the legislative and regulatory changes needed to achieve these goals are long-term actions. In the interim, all operators of submerged pipelines should proceed with programs to inspect their pipelines and to bury them where necessary.

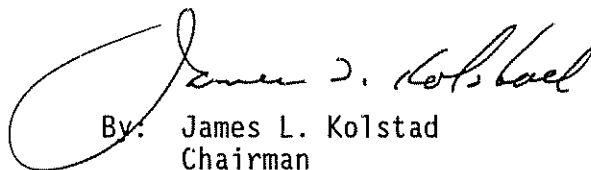
Therefore, as a result of this accident, the National Transportation Safety Board recommends that the Interstate Natural Gas Association of America, the American Gas Association, the American Public Gas Association, and the American Petroleum Institute:

Notify member companies of the circumstances of the accident involving the rupture of the natural gas pipeline in the Gulf of Mexico and the fire on board the F/V NORTHUMBERLAND on October 3, 1989, and recommend that members who operate submerged pipelines establish and implement a program to conduct regular and adequate inspections of their submerged pipelines and maintain them in accordance with as-built construction plans and all right-of-way permits. (Class II, Priority Action) (P-90-39)

Also as a result of its investigation, the Safety Board issued recommendations to the Zapata Haynie Corporation, Natural Gas Pipeline Company of America, U.S. Department of Transportation, Research and Special Programs Administration, U.S. Coast Guard, U.S. Department of the Interior, Minerals Management Service, U.S. Army Corps of Engineers, National Oceanic and Atmospheric Administration, National Fish Meal and Oil Association, Louisiana Shrimp Association, and National Council of Fishing Vessel Safety and Insurance.

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "...to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendations and would appreciate a response from you regarding action taken or contemplated with respect to the recommendation in this letter. Please refer to Safety Recommendation P-90-39 in your reply.

KOLSTAD, Chairman, COUGHLIN, Vice Chairman, LAUBER, BURNETT, and HART, Members, concurred in this recommendation.



By: James L. Kolstad
Chairman