

Log P-316A

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## National Transportation Safety Board

Washington, D.C. 20594

### Safety Recommendation

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**Date:** January 6, 1998

**In reply refer to:** P-97-6 through -8

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Acting Administrator  
Research and Special Programs Administration  
U.S. Department of Transportation  
Washington, DC 20590

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About 8:30 a.m. on November 21, 1996, because of a propane gas leak, a commercial building in San Juan, Puerto Rico, exploded. Thirty-three people were killed, and more than 80 were injured.

The building was in Río Piedras, a shopping district in San Juan. The structure was a six-story mixture of offices and stores owned by Humberto Vidal, Inc. The company's administrative offices occupied the third, fourth, fifth, and sixth floors, and the first and second floors housed a jewelry store, a record store, and a shoe store.<sup>1</sup>

The National Transportation Safety Board determines that the probable cause of the propane gas explosion, which was fueled by an excavation-caused gas leak, in the basement of the Humberto Vidal, Inc., office building was the failure of San Juan Gas Company, Inc., (SJGC) to oversee its employees' actions to ensure timely identification and correction of unsafe conditions and strict adherence to operating practices and the failure of the SJGC to provide its employees with adequate training.

Also contributing to the explosion was the failure of the Research and Special Programs Administration/Office of Pipeline Safety (OPS) to oversee effectively the pipeline safety program in Puerto Rico, the failure of the Puerto Rico Public Service Commission (PSC) to require the SJGC to correct identified safety deficiencies, and the failure of Enron Corp. to oversee adequately the operation of the SJGC.

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<sup>1</sup> For more information, read Pipeline Accident Report—*San Juan Gas Company, Inc./Enron Corp. Propane Gas Explosion in San Juan, Puerto Rico, on November 21, 1996* (NTSB/PAR-97/01).

Contributing to the loss of life was the failure of the SJGC to adequately inform citizens and businesses of the dangers of propane gas and the safety steps to take when a gas leak is suspected or detected.

Well before the accident, the PSC inspectors had identified, documented, and formally notified the SJGC of probable violations. However, while the SJGC did not totally ignore the notices, its responses indicate that it saw little urgency about making corrections. The PSC's 1992 and 1993 inspections documented 16 and 20 probable violations, respectively; five violations were the same for both years.

At the OPS's urging in 1993, the PSC levied a small monetary penalty against the SJGC in 1994. In 1995, PSC inspectors documented more than 80 probable violations. A PSC inspector testified at the June 1997 public hearing that he had discussed the 1995 inspection results with SJGC management; however, the PSC could produce no documents proving that it had either notified the SJGC or told the PSC commissioners of any need to take formal action against the SJGC. The PSC did not take any formal action against the SJGC for failing to correct the probable violations; and in 1996, PSC inspectors documented more than 50 probable violations. More than 30 were the same as those documented in 1995. Again, the PSC was unable to produce written documentation showing that the SJGC had been notified.

The OPS is responsible for evaluating the PSC's pipeline safety program. At the June 1997 Public Inquiry, the OPS southern region director, whose responsibilities include overseeing Puerto Rico, advised that it is essential to the success of a program, as well as a requirement of the certification, that the agency be able to enforce the regulations by levying civil penalties as appropriate. He also said that if a State finds violations but does not notify the operator and follow up to make sure the violations are corrected, the OPS will call the deficiency to the attention of the PSC.

The region director said that the PSC's program has improved steadily since 1992. "Today, there is more support from the PSC commissioners for the pipeline safety program, and this is especially true for the past couple of years since one commissioner pledged his cooperation to the OPS and his support for the pipeline safety staff."

Each year, the OPS evaluates the PSC's performance during the previous year. During the 1970s and 1980s, the OPS sent letters to the PSC specifying the deficiencies in SJGC operations and followed up with the PSC to ensure that corrective action had been taken. Based on the OPS's letters to the PSC in the 1990s, the OPS concentrated, almost to the exclusion of all other needs, on obtaining equipment to enable PSC staff to better perform its inspections and on establishing an excavation-damage prevention program for Puerto Rico.

Although the OPS has been trying to improve the PSC's pipeline safety program, since 1993, the OPS has given the PSC's pipeline safety program high scores despite significant deficiencies. The problem was compounded by the OPS's letters to the PSC's president; the letters gave no indication the program needed significant improvements, such as the development of written procedures to guide its staff on documenting and notifying an operator of probable violations or the development of an effective enforcement program.

The OPS did notify the PSC in 1993 of its concern about the PSC's 1992 inspection findings of 16 probable violations, and it advised the PSC that it should seriously consider using civil penalties to force the SJGC to make corrections. As a result, the PSC did levy a monetary penalty. Since then however, the OPS has not recommended that the PSC take any enforcement actions, even after the Río Piedras explosion. Based on its latest evaluation, the 1996 evaluation, the OPS awarded the PSC a rating of 97 for its pipeline safety program, including giving it the highest possible rating for its compliance program. The OPS awarded these ratings even though the PSC in 1996 had told the SJGC that it had more than 50 probable violations, of which 30 had been identified in 1995, and the PSC had not taken any formal action to force the SJGC to make corrections.

The Safety Board agrees with the OPS that the States usually can provide more resources than the OPS does for monitoring pipeline operations and that when possible, the responsibility for monitoring should remain with the State. However, the OPS retains overall responsibility; and through its monitoring of State programs, it must ensure that pipelines are operated in a manner that provides adequate public safety. The Safety Board also agrees that the OPS should work with the States to help them maintain and improve their programs. However at no time should the OPS's objective of keeping States in the pipeline safety program take precedence over its responsibility for ensuring that pipeline systems are safely operated and maintained to preserve public safety.

Each year, after the OPS had evaluated the PSC's pipeline safety program, it scored the program's effectiveness and gave the PSC president a numerical grade. The PSC's enforcement program received the maximum allowable points in each of the 3 years. For the past 3 years, the PSC's pipeline safety program received overall scores of 95, 97, and 97, respectively. The scores would indicate little, if any, need for improvement. The Safety Board concludes that the OPS's evaluation scores for the PSC before the Río Piedras explosion misled the PSC commissioners about the need to bring enforcement action against the SJGC.

When a State program is not functioning, the OPS must fill the gaps; any time public safety is being compromised, the OPS must act. The Safety Board believes that in view of the events preceding the Río Piedras explosion, the OPS must improve its State pipeline safety certification program. The OPS must develop written guidance and criteria that its personnel can use to evaluate State programs objectively, and the OPS must require States to be prompt in correcting identified program deficiencies.

The inadequacy of the training that the SJGC gave its employees was an important factor in the Río Piedras accident. The Safety Board has had a long standing concern about the quality of the training pipeline employees receive and about whether the training ensures that the employees are able to do their jobs. Ten years ago, in a February 18, 1987, report,<sup>2</sup> the Safety Board recommended that RSPA:

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<sup>2</sup> National Transportation Safety Board Pipeline Accident Report, *Texas Eastern Gas Pipeline Company Ruptures and Fires at Beaumont, Kentucky on April 27, 1985, and Lancaster, Kentucky, on February 21, 1986* (NTSB/PAR-87/01).

P-87-2

Amend 49 CFR Parts 192 and 195 to require that operators of pipelines develop and conduct selection, training, and testing programs to annually qualify employees for correctly carrying out each assigned responsibility which is necessary for complying with 49 CFR Parts 192 or 195 as appropriate.

In March 1987, RSPA published an Advance Notice of Proposed Rule Making, *Pipeline Operator Qualifications* (Docket No. PS-94, Notice 1), which said:

This notice, issued in advance of a proposed rule, invites public comment on the need for additional regulations or a certification program regarding the qualification of personnel who design, construct, operate, or maintain gas or hazardous liquid pipelines.

The Board responded in May, saying that it had issued 110 recommendations about the training of pipeline workers. The Board had issued the recommendations as the result of various pipeline accidents between 1975 and 1986, and the recommendations covered a wide variety of training deficiencies that applied to a broad segment of pipeline activities. The Safety Board advised that it had found training deficiencies that were either contributing or directly causal to pipeline accidents in nearly every facet of activity investigated, including operations, construction, and emergency response. It noted that training and performance criteria for the pipeline operating community needed to be developed and implemented so that the effectiveness of the training and the performance of the operator could be measured. The Board said that without such measures it would be hard to determine objectively whether training had improved an employee's performance and whether the objectives of the training had been met.

In its comments to the Advance Notice of Proposed Rule Making and directly bearing on the SJGC investigation, the Safety Board told RSPA that it needed to require pipeline operators to:

- identify each employee whose successful accomplishment of assigned responsibilities or tasks was a necessary part of an operator's actions to comply with the Federal pipeline safety regulations;
- perform analyses to identify the tasks, jobs, and responsibilities each employee had that related to Federal pipeline safety regulations;
- identify specific training methods to be employed to provide each employee with enough knowledge to effectively carry out applicable jobs, tasks, and responsibilities identified in the analyses;
- identify methods to be used in evaluating the effectiveness of the training, including the identification of standards for acceptance; and
- document the training provided for each employee and training evaluations.

On May 11, 1993, the Safety Board reminded RSPA that it had been more than 5 years since the Board had recommended establishing employee qualification standards and that implementing the recommendation should have been one of RSPA's top priorities. The Board affirmed that it remained firmly convinced that the recommended training, qualification, and testing requirements and standards were essential. As a result of RSPA's inaction, Safety Recommendation P-87-2 was classified "Open—Unacceptable Response."

On July 27, 1994, RSPA issued a Notice of Proposed Rulemaking (NPRM) proposing the qualification standards for pipeline employees. On November 9, 1994, the Safety Board responded to the NPRM, commenting on the proposal and urging RSPA to expedite completion of the rulemaking. RSPA received 131 comments on its proposal; and almost 2 years later, on June 25, 1996, it withdrew the proposal in favor of conducting a procedure known as "Negotiated Rulemaking."<sup>3</sup> In its June 26, 1996, Notice of Intent, RSPA stated that "Commenters to the NPRM stated that the proposal was too prescriptive and that many references to training requirements should be modified to place the focus of the NPRM on actual qualifications, not the methods of achieving it." RSPA selected a committee to represent the "interests" affected by actions that it may take on employee qualification requirements. In April 1997, the committee began drafting a new rule proposal, but has not completed its task.

The committee has addressed provisions for employee performance assessment and recordkeeping. By requiring the evaluation of employees' performance, the committee addressed the Safety Board's concern that the qualifications of employees of pipeline facilities be judged on the basis of objective, demonstrable forms of evaluation. The committee will also recommend that an evaluation of an employee's performance be required if the employee is involved in a reportable incident to which his actions may have contributed. In August 1997, the committee had its fourth meeting. The goal was to obtain consensus among committee members on a draft regulation concerning operator qualifications and to review and revise the outline for the rulemaking preamble. The Safety Board continues to urge RSPA to expedite the completion of rulemaking action to achieve this essential safety objective.

Another factor in the accident was the SJGC's method of handling abandoned gas lines. The Humberto Vidal building was on the corner of José de Diego and Camelia Soto. Before the accident, more than 20 pipes and conduits were beneath Camelia Soto, some meant for future use, some being used, and others that had been abandoned. The investigators found that many of the abandoned pipes and conduits had not been plugged or otherwise sealed, and combustible-gas indicator tests showed that escaping propane gas had probably flowed along one or more of the active and abandoned pipes and conduits under Camelia Soto until it reached the building.

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<sup>3</sup> "The negotiated rule process assists in the development of the NPRM, allowing all affected parties to present their views to reach a consensus, thus avoiding litigation and disagreement once the rule is finalized. By using this process OPS has agreed to publish the committee's consensus. Also, the overall contents of the regulation are the responsibility of the committee. However, by participating in this process, the Office of Pipeline Safety does not give up its responsibility to promulgate the final rule." Taken from the draft summary minutes of the April 23, 24, 1997, advisory committee meeting

During the investigation, investigators found several buried facilities for which the maps and related records were nonexistent, out of date, or incomplete. For 2 days, the SJGC was unable to find its drawings of the plastic gas line under Camelia Soto, and some records it produced of gas service lines in the area were not fully descriptive. Additionally, no one was able to locate any records that showed the purpose or ownership of the 2-inch-diameter plastic conduit found in contact with the gas service line under the street that was parallel to José de Diego.

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

Modify your monitoring of State pipeline safety programs to ensure that the States are timely in monitoring the correction of identified safety deficiencies and to ensure that they implement enforcement action as necessary. (P-97-6)

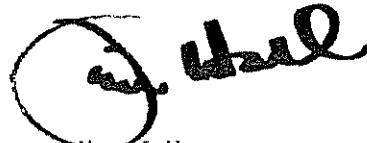
Complete a final rule on employee qualification, training, and testing standards within one year. Require operators to test employees on the safety procedures they are expected to follow and to demonstrate that they can correctly perform the work. (P-97-7)

Require that San Juan Gas Company, Inc., take action necessary to ensure that abandoned pipelines are properly disconnected, purged of propane, and adequately secured to prevent the transmission of flammable vapors and gases, and to ensure that abandoned pipelines are properly identified on maps. (P-97-8)

Also, the Safety Board issued Safety Recommendations P-97-5 to the U.S. Secretary of Transportation, P-97-9 and -10 to the Puerto Rico Public Service Commission, P-97-11 and -12 to Enron Corp., and P-97-13 to Heath Consultants, Inc.

Please refer to Safety Recommendations P-97-6 through -8 in your reply. If you need additional information, you may call (202) 314-314.

Chairman HALL, Vice Chairman FRANCIS, and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in these recommendations.



By: Jim Hall  
Chairman