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The Department of Transportation's Recent Efforts to Strengthen Pipeline Safety

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Subcommittee on Investigations and Oversight of the House Committee on Public Works and Transportation

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Mr. Chairman and Members of the Subcommittee:

We welcome the opportunity to be here today to discuss the Department of Transportation's (DOT's) pipeline safety program. You expressed specific concern that the Department was not doing all it could to safeguard lives and property. To address this concern, we agreed to provide an update of the Department's response to our 1984 recommendations[1].

Our July 1984 report[2] recommended that the Department's Research and Special Programs Administration (RSPA), which is responsible for the pipeline safety program, more effectively align its resources with its corresponding pipeline safety responsibilities. We suggested that RSPA could do this through such actions as defining alternatives to the existing federal/state relationship, providing clearer guidance to state agencies and RSPA field offices, and considering the merits of mandatory quality assurance programs for pipeline operators. We also recommended that RSPA study the need to regulate other portions of the pipeline system.

In summary, Mr. Chairman, as we updated our earlier work, we found that in many areas RSPA's response to our recommendations has

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[1]In this regard, we testified before the House Subcommittee on Fossil and Synthetic Fuels in April 1985 and reported in September 1986 to Representative Vento (Pipeline Safety: Actions Taken to Improve the Program [GAO/RCED-86-235FS, September 30, 1986]) that, according to the Department, all but one of our 1984 recommendations are being addressed. Until now, however, many of the Department's actions were not complete, and we could not evaluate their results or effects on the program.

[2]Need to Assess Federal Role in Regulating and Enforcing Pipeline Safety (GAO/RCED-84-102, July 10, 1984).

been positive, and we believe its actions will result in more effective use of resources and greater pipeline safety. For example, RSPA has established a means of encouraging greater state responsibility for pipeline safety by linking the level of state involvement to the size of the federal grant that the state receives to partially offset its program costs. RSPA has also revised and clarified its procedures for monitoring state programs and has, for the first time, consolidated all guidance for its field staff's use into a single operations manual. In three areas, however, we believe that further efforts are needed:

-- redefining the federal/state relationship, which is critical to defining the span of oversight responsibility for pipeline safety;
-- determining the cost effectiveness of requiring pipeline operators to have quality assurance (QA) programs; and
-- assessing whether additional portions of the pipeline transportation system should be regulated.

Although RSPA has studied each of these areas, we found that low priority had resulted in a study of appropriate state and federal roles not being completed. And, for the other areas, we question the studies' methodologies and underlying data and whether RSPA's conclusions were soundly based. In addition, we identified several areas which, according to state and federal inpectors, need to be studied to determine whether additional regulation is warranted.

BACKGROUND

Federal safety standards cover approximately one and three-quarter million miles of pipelines in the United States, and these pipelines move nearly all the natural gas and about one-half the petroleum and related products transported annually. During the decade 1977-86, 16,668 pipeline accidents were reported to DOT with 2,769 injuries and 299 deaths. Although since 1978 the trend in these numbers is down, many of these accidents and deaths were caused by unsafe conditions or accidents that we believe might have been corrected if pipeline operators had adhered more conscientiously to safety standards and practices.

DOT is responsible for inspecting all pipeline operators--both interstate and intrastate operators. However, the intrastate portion of this responsibility can be delegated to states that agree to enforce the federal safety standards. To date, only three states have chosen not to inspect their intrastate lines, thus leaving RSPA with this responsibility, and this has not changed appreciably since we reported in 1984.[3] To carry out its pipeline safety program, RSPA has requested for fiscal 1988 an appropriation of about $9.6 million, of which $5.0 million goes to states as grants-in-aid to reimburse up to 50 percent of a state's costs to administer its safety program. The remaining $4.6 million funds the federal program of research, development, and operations, including field inspection with a cadre of 14 inspectors (15 are authorized) and 5 regional chiefs in 5 regional offices nationwide.

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[3]The three states are South Dakota, Idaho, and Alaska.

We reported in 1984, however, that the Department's inspection workload exceeded the time available to the 12 inspectors it had at that time. Therefore, we recommended ways that RSPA could conserve its scarce inspector resources. As we followed up on that report's recommendations during the last several months, we spoke with headquarters and regional officials of RSPA's Office of Pipeline Safety (OPS) as well as officials in 10 state agencies whose safety programs were large or whose activity level, according to OPS data, could be increased substantially.

GAO'S EVALUATION OF THE DEPARTMENT'S ACTIONS TO STRENGTHEN PIPELINE SAFETY

Now I will summarize our evaluation of the Department's response to our recommendations by stating first the basis and substance of the recommendation, followed by the Department's actions, and finally our evaluation of what the Department is doing.

Redefining the federal-state relationship

Based on our conclusion that the Department's workload could increase despite limited resources and uncertain state inspection activity, we recommended that the Department develop alternatives to redefine the federal role and responsibilities for assuring the safety of intrastate pipelines. According to the Department official responsible for addressing this recommendation, RSPA is conducting a study that will

-- discuss financial alternatives to maintain or obtain state participation in the program;

-- analyze the impact of each alternative on inspection activity and provide information on general staffing and funding needs, including possible ways of funding each alternative; and

-- identify any needed legislative changes.

Although OPS completed a draft of the study in October 1985, RSPA has not yet completed its review and approval of the study; therefore, OPS has not prepared a final version of the report. This is because, according to the OPS Deputy Director, the study currently has a low priority and RSPA management has not answered all the policy questions raised in the study. However, if OPS has conducted the study in the way it said it would, the study has the potential to identify viable program alternatives that could result in states shouldering more of the intrastate inspection load, thus allowing OPS to focus its scarce resources in other areas.

During our work, some state agency officials raised questions about the relative proportion of state inspectors versus federal inspectors in comparison to the inspection workload of both groups. In seeking basic data with which to make workload comparisons between federal and state inspectors, we found that OPS does not maintain this kind of information. Moreover, in some ways it would be like comparing apples and oranges--the scope of federal inspectors' responsibilities is not identical to that of state inspectors. For example, state inspectors periodically become involved in ratemaking and rulemaking, two tasks not assigned to federal inspectors. In addition, federal inspectors are

responsible mainly for natural gas and hazardous liquid transmission lines, whereas state inspectors are responsible mainly for gas distribution lines and only seven states have elected to take jurisdiction over liquid lines. Nevertheless, if meaningful program alternatives are to be developed whereby states can be encouraged to take a larger share of what is now the federal workload, some measures of workload comparison could be useful. OPS officials told us that the federal inspection workload is now broken down into inspection units, which I will mention again in few minutes, but that not all of the states have done the same. Until they have, comparisons and trade-offs between federal and state jurisdiction over a segment of the industry will be difficult.

In an effort to make some changes in the federal/state share of responsibility, OPS instituted in 1985 a point system with which it measures states' safety program level of effort. OPS awards points to states based on the extent to which they adhere to federal program guidelines, assume inspection jurisdiction over operators, and meet federal criteria for numbers of inspectors and number of days they spend inspecting. Federal assistance to a state through the grant-in-aid program is then proportional, in part, to the state's point total.[4] The OPS region chiefs and the state pipeline safety officials we contacted generally supported the point system, noting that it has encouraged the states to make

[4]Twenty-five percent of the available grant-in-aid money for a given year is allocated to states in proportion to their scores under the point system.

various improvements in their programs. The system's effectiveness in motivating the states to increase their jurisdiction over pipeline operators, thus relieving OPS of that workload, however, is less clear. Pipeline safety officials noted that extending jurisdiction over pipeline operators involves various political considerations, not the least of which are operator concerns about subsequent economic regulation, or ratemaking, by the states.

Improving inspection efficiency and reporting accuracy

Given the staffing and resource constraints in 1984, we concluded that RSPA should improve the efficiency of its inspection activities. We therefore recommended that RSPA

-- evaluate the costs and benefits of establishing a mandatory QA program for interstate pipeline operators,
-- better control its inspection workload by dividing all operators into manageable inspection units, and
-- require changes to the workload and activity data maintained in its regional offices and to the way these data are summarized and reported to headquarters.

In September 1985 OPS evaluated the costs and benefits of a mandatory QA program for the pipeline industry and concluded that OPS would realize only a token savings of $18,105 per year. This was because in 1984 OPS expended only 659 staff-days, or about 17 percent of its inspectors' time, to inspect interstate operators'

systems.[5] (This number rose 10 percent to 724 days in 1985.) Also contributing to this small benefit was that, under the proposed mandatory QA program, OPS's inspectors would not be freed completely from visiting interstate operators. Instead, they would spend about 83 percent of the time that they would have devoted to inspection on spot-checking, reviewing, and approving the operators' QA systems. The evaluation also questioned the potential benefits of improved pipeline safety under a program of fully developed operator QA programs because OPS's experience shows that many violations have been discovered even in the presence of exemplary QA programs.

Our review of this evaluation shows that it has methodological problems, and we note that it did not adhere to the suggestions that we made in our 1984 report for determining cost-effectiveness. For example, no attempt was made to quantify the increased safety that might accrue because of improved or standardized QA procedures or the cost to operators to establish and maintain acceptable QA systems. In our opinion, calculating benefits solely on the basis of reduced federal inspector salaries and related costs, as was done in the initial study, is not a sufficient basis to conclude that a QA program would not be beneficial in relation to its costs.

In July 1986, the House Appropriations Committee requested that RSPA reassess the need for mandatory QA programs for pipeline

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[5]The remaining 83 percent of an inspector's time is spent inspecting intrastate operators, carrying out enforcement actions, investigating complaints and accidents, participating in training, and performing administrative functions.

operators by explaining whether these requirements would serve to increase industry compliance with federal regulations and thereby improve system safety. In a draft of its reassessment, RSPA continues to state that mandatory QA would neither increase industry compliance nor improve safety. Although RSPA consulted with its advisory committees[6] who recommended against mandatory QA, it presented no new quantitative data to support its beliefs regarding the need for mandatory QA programs. Instead, RSPA presented alternative recommendations aimed at improving the qualifications and training of pipeline operators and developing more comprehensive operation and maintenance procedures for gas pipeline operators. These recommendations are part of an advanced notice of proposed rulemaking that was published on March 23, 1987, and for which the comment period will end in late June.

In regard to our recommendations on creating inspection units and changing the way regional offices maintain and report data, we confirmed with OPS' then Director of State Operations Unit that OPS regional offices have taken the actions that we recommended. They have divided operators' systems into manageable inspection units which will allow them to plan their workload more appropriately so that some smaller operators do not receive more inspection coverage than larger operators. This is needed because pipeline operators vary greatly in size and in the management of their operations.

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[6]The Technical Pipeline Safety Standards Committee and the Technical Hazardous Liquid Pipeline Safety Standards Committee were established by the program's authorizing legislation. Each committee is composed of fifteen members drawn from industry, government, and the general public.

Examples of inspection units are the section of Transcontinental Gas Company pipeline that runs from Greensboro, NC, to Alexandria, VA, and the Plantation hazardous liquid pipeline that runs from Richmond to Springfield, VA. These sections are not only of manageable size to inspect but also are managed by the company as a distinct units with all the appropriate records and management personnel located within the sections. At RSPA's request, states also are dividing their operators' systems into units, and several state officials that we contacted told us that this makes their workload easier to manage.

With one exception, RSPA has also made the changes that we recommended regarding maintaining workload inventory and reporting activity data. The exception is that master meter operators under federal jurisdiction have not been identified and added to the workload inventory, although RSPA is still responsible for inspecting these operators.

Better assuring that operators comply with standards

In 1984 we concluded that some guidelines for evaluating state pipeline safety programs--such as how to determine whether states' inspections were "comprehensive," "methodical," and "systematic"--had not been adequately defined, some errors in state program data had not been identified, and RSPA needed better state performance data. Therefore, to improve state programs and thus better assure that operators comply with federal safety standards, we recommended that RSPA

-- improve state agency reporting of inspection activity and its own monitoring of state agency safety programs and
-- better define state inspector qualifications and training requirements and assist states in obtaining the needed inspector training by working more closely with states on a series of initiatives.

Our review of OPS's actions in response to these recommendations shows that changes have taken place in the way regional offices monitor states and report results. For example, RSPA headquarters staff developed a new operations manual for regional use and new procedures for monitoring state programs. Region chiefs told us these guidelines are clearer than earlier issuances and will better ensure consistent state monitoring. In addition, a new state monitoring form is now being used which enables OPS to collect more detailed and consistent state performance data.

To better ensure that state inspectors are qualified, RSPA is considering a certification program to accompany its existing requirement that inspectors receive a core of seven courses from the Department's Transportation Safety Institute in Oklahoma City, OK. The certification program should give states more flexibility to hire qualified inspectors, even though they might not have qualifications such as an engineering degree or a professional engineer's license. On the whole, we believe that the steps RSPA has taken in this area are productive and should improve its performance.

Determining the need for additional regulation

Our final recommendation focused on several pipeline facilities and commodities transported by pipeline that are not covered by existing regulations but which may pose safety problems. We recommended that RSPA determine whether certain currently unregulated portions of the gas and liquid transportation system warrant regulation and, if so, propose new legislation or amend existing regulations appropriately.

RSPA responded to this recommendation by studying the need to regulate one of the unregulated portions of the liquid system--pipeline-connected terminal storage of hazardous liquids. In RSPA's July 1986 study, it compared operator-provided accident data for this kind of storage with data for breakout tanks, a kind of liquid storage that is under regulation. RSPA concluded that there was no basis to say that unregulated pipeline-connected storage was less safe than the regulated breakout tanks.

Our review of that study, however, shows that the data on unregulated storage accidents may not have been randomly selected, yet the statistical tests that provide the basis for the study's conclusions are premised on having random data. Thus the possibility that the data were not randomly selected calls into question the study's conclusion. For example, although RSPA acknowledges that it sought to collect accident data from a nonrandom sample of 20 pipeline operators that were chosen primarily for their large size, it says it treated the sample as random because no foreknown biases exist. Of the 20 operators, 18

responded. However, the data of only 10 were suitable for use in the study.[7] Without knowing in advance that the data of these 10 are random, they cannot be thought of as representing the data of all the operators because they comprise less than a fifth of the accidents that occurred during the analysis period. For these reasons, we question whether the data used in this study were valid. Therefore, we believe, although RSPA disagrees, that RSPA still needs to determine whether regulation for this kind of storage is warranted.

In addition, several other unregulated portions of the system exist that merit study to determine if regulating them would be warranted. Among those mentioned by OPS region chiefs and state pipeline safety officials were (1) rural gas gathering lines, (2) hazardous liquid lines operated at relatively low stress levels, (3) small petroleum gas systems, (4) customer lines beyond the meter, (5) interplant facilities, and (6) lines carrying hazardous substances--such as liquefied carbon dioxide, ethanol, methanol, and ammonium dioxide--which are currently unregulated. Pipeline safety officials consistently expressed the opinion that OPS should, at a minimum, require all gas and hazardous liquid facility operators to file annual and incident reports. OPS then would have the data necessary to determine whether regulation is warranted.

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[7]The 20 pipeline companies accounted for 89 of the 156 (57 percent) tank or tank farm-related accidents reported to DOT during the years 1975-84, inclusive. The 10 companies whose data was ultimately used accounted for 29 of the 156 accidents, or 19 percent.

By studying pipeline-connected storage facilities, RSPA has begun to investigate the need for additional regulation. However, given the many opportunities for further study mentioned by OPS region chiefs and state safety officials, RSPA seems to have scratched only the surface of areas that will need to be studied in the future.

In summary, Mr. Chairman, while RSPA has improved several of its procedures for assuring the safety of interstate pipelines and the quality of state programs, it still needs to focus on encouraging a greater state role, determining whether operator quality assurance systems could supplant some portion of the federal inspection effort, and studying various unregulated portions of the gas and liquid pipeline transportation system to determine whether they need regulation.

This concludes my statement, Mr. Chairman, and I will be pleased to answer questions at this time.

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