

DOCUMENT RESUME

05904 - [B1226182]

Pipeline Safety: Need for a Stronger Federal Effort. CED-78-99; B-86339. April 26, 1978. 4 pp. + 2 appendices (19 pp.).

Report to Secretary, Department of Transportation; by Henry Eschwege, Director, Community and Economic Development Div.

Issue Area: Transportation Systems and Policies: National Policies and Programs (2406); Energy (1600); Consumer and Worker Protection (900).

Contact: Community and Economic Development Div.

Budget Function: Commerce and Transportation: Other Transportation (407); Natural Resources, Environment, and Energy: Energy (305).

Organization Concerned: Department of Transportation: Office of Pipeline Safety Operations.

Congressional Relevance: House Committee on Interstate and Foreign Commerce; Senate Committee on Commerce, Science, and Transportation.

Authority: Transportation of Explosives Act (18 U.S.C. 831). Natural Gas Pipeline Safety Act of 1968, as amended (49 U.S.C. 1671). Transportation Safety Act of 1974, title I (49 U.S.C. 1801).

A review of the Federal pipeline safety program identified a number of significant problems and weaknesses in the program. The Office of Pipeline Safety Operations (OPSO) in the Department of Transportation has regulatory authority for the safe transportation of essentially all gas and hazardous liquids, but it has not fully or effectively exercised this authority. Findings/Conclusions: OPSO has not: issued safety regulations governing all hazardous material pipelines, issued comprehensive Federal standards for liquefied natural gas facilities, issued stringent safety standards for the transportation of highly volatile liquids, revised the liquid pipeline safety regulations, or systematically reviewed existing pipeline safety regulations to assure that they are effective. In addition, OPSO has not provided the States with specific guidance for conducting pipeline safety programs or established minimum program quality criteria for State participation. Improvements are needed by OPSO to ensure operator compliance with established pipeline safety standards. OPSO has not developed an effective data collection and analysis system, and only limited use has been made of data collected in the Federal pipeline safety program. OPSO's ability to conduct a comprehensive program has been adversely affected by staffing problems and the continued absence of a permanent director. Recommendations: The Secretary of Transportation should direct OPSO to: issue safety regulations covering all gas and hazardous liquid pipelines, promptly develop and issue more comprehensive standards for liquefied natural gas facilities and more stringent standards for highly volatile liquids, revise existing

liquid pipeline regulations to be specific and comprehensive, undertake a systematic and thorough review of all Federal pipeline safety regulations, expedite current efforts to develop guidance for States in conducting adequate inspection and enforcement programs, establish minimum program quality criteria for State participation in the Federal gas pipeline safety program, conduct adequate operator compliance inspections, conduct a more active enforcement program against operators who do not comply with established safety standards, and develop a more comprehensive and accurate data system. (EES)

6182
REPORT BY THE U.S.

General Accounting Office

Pipeline Safety—Need For A Stronger Federal Effort

There are about 1.7 million miles of gas and hazardous liquid pipelines in the United States through which flow quantities of extremely volatile substances exposing large segments of the population to potential catastrophes.

The Department of Transportation's Office of Pipeline Safety Operations is responsible for developing and administering a comprehensive and effective pipeline safety program but a number of significant problems and weaknesses exist. There is a need for

- more complete and effective pipeline safety regulations,
- strengthened State pipeline safety programs,
- improved compliance efforts,
- more effective data analyses, and
- increased attention to staffing requirements.



CEG-78-99
APRIL 26, 1978

GTR0000443



UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

COMMUNITY AND ECONOMIC
DEVELOPMENT DIVISION

B-86339

The Honorable
The Secretary of Transportation

Dear Mr. Secretary:

Enclosed is a copy of our testimony presented on February 27, 1978, before the Senate Committee on Commerce, Science and Transportation, on the results of our review of the Federal pipeline safety program. (See app. I.) Also enclosed is a copy of the material submitted for the record which summarizes those pipeline safety issues we believe should be receiving priority attention in the Department. (See app. II.)

Our review identified a number of significant problems and weaknesses in the program.

- Although the Office of Pipeline Safety Operations (OPSO) has regulatory authority for the safe pipeline transportation of essentially all gas and hazardous liquids, it has not fully or effectively exercised this authority. Specifically, OPSO has not (1) issued safety regulations governing all hazardous material pipelines to which the public is exposed, (2) issued comprehensive Federal standards for liquefied natural gas facilities, (3) issued more stringent safety standards for the transportation of highly volatile liquids, (4) revised the liquid pipeline safety regulations to better assure the public safety, or (5) systematically reviewed existing pipeline safety regulations to assure that they continue to be effective and reasonable or that needed revisions are being made.
- Although the States have a major role in the enforcement of the Federal gas pipeline safety regulations, OPSO has not (1) provided the States with specific guidance for conducting effective pipeline safety programs or (2) established minimum program quality criteria for State participation.

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--Basic improvements are needed by OPSO to ensure operator compliance with the established pipeline safety standards. Specifically, operator inspections being conducted are limited in their coverage and do not give adequate consideration to priority problem areas and operators. In addition, OPSO has not aggressively taken enforcement actions against those operators who fail to comply with the established safety standards.

--Although vitally important for conducting a rational pipeline safety program, OPSO has not developed an effective data collection and analysis system. Only limited use has been made of the data accumulated in the Federal pipeline safety program. In addition, the usefulness of the existing data system is limited by the absence of important data and by inaccuracies in the present data base.

--OPSO's ability to conduct a comprehensive and effective pipeline safety program has been adversely affected by staffing problems. The small size of the OPSO staff has not allowed it to deal effectively with its mandated responsibilities, particularly with respect to monitoring operator compliance and State programs, completing regulatory projects, and addressing such issues as master meter operators. Also, nearly one-third of the positions currently authorized remain unfilled.

--The continued absence of a permanent director has not been conducive to effective and timely decisionmaking and raises serious questions as to the priority given to the pipeline safety program.

We recommend that you direct OPSO to:

--Issue safety regulations covering all gas and hazardous liquid pipelines which pose potential hazards to the public safety.

--Promptly develop and issue more comprehensive standards for liquefied natural gas facilities and more stringent standards for highly volatile liquids, such as liquefied petroleum gas and anhydrous ammonia.

- Revise the existing liquid pipeline regulations to be as specific and comprehensive as the gas pipeline regulations.
- Undertake a systematic and thorough review of all Federal pipeline safety regulations to identify and address problems and weaknesses in them.
- Expedite its current efforts to develop guidance for the States in conducting adequate inspection and enforcement programs.
- Establish, in cooperation with the States, minimum program quality criteria for State participation in the Federal gas pipeline safety program. Where State programs do not meet the established criteria, OPSO should assert Federal jurisdiction over those programs.
- Conduct adequate operator compliance inspections with particular emphasis on identified priority areas and operators.
- Conduct a more active enforcement program against those operators who do not comply with the established pipeline safety standards. Attention should be given to selective verification of promised corrective actions and to seeking civil penalty authority over liquid pipeline operators.
- Develop a more comprehensive and accurate data system and use this system in conducting the Federal pipeline safety program.
- Thoroughly review its mandated responsibilities and the adequacy of its current and programmed staffing levels and allocations to carry out these responsibilities in a comprehensive, effective, and timely manner. Immediate attention should be given to filling the large number of currently vacant positions.

We also recommend that you give priority attention to the appointment of a permanent OPSO director.

You should also consider the feasibility of providing the States with safety authority over hazardous liquid pipelines, similar to that which currently exists over gas pipelines. As pointed out during the February 27, 1978, hearings, we believe that such authority, limited to those States with proven records in the gas pipeline safety program, could assist OPSO in carrying out its pipeline safety responsibilities. Providing the States with such authority would require changes in the existing pipeline safety legislation.

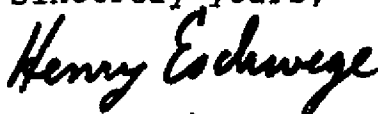
We will be pleased to discuss any of the above matters with you or members of your staff and would appreciate receiving your comments on any action taken or planned.

As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the Senate Committee on Governmental Affairs and the House Committee on Government Operations not later than 60 days after the date of the report and the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We are sending copies of this report to the four committees mentioned above and to the Chairman, Subcommittee on Consumer, Senate Committee on Commerce, Science and Transportation; the Chairman, Subcommittee on Energy and Power, House Committee on Interstate and Foreign Commerce; the Director, Office of Management and Budget; and to various other interested parties. We are also sending copies to the Department's Office of Management Systems, Office of the Secretary.

We appreciate the cooperation and courtesy of the Office of Pipeline Safety Operations' staff during our review.

Sincerely yours,



Henry Eschwege
Director

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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

FOR RELEASE OR DELIVERY
EXPECTED AT 9:00 A.M. EST
MONDAY, FEBRUARY 27, 1978

STATEMENT OF
HENRY ESCHWEGE, DIRECTOR
COMMUNITY AND ECONOMIC DEVELOPMENT DIVISION

BEFORE THE
SENATE COMMITTEE ON COMMERCE, SCIENCE AND TRANSPORTATION
ON
THE EFFECTIVENESS OF THE FEDERAL PIPELINE SAFETY PROGRAM

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

WE ARE HERE TODAY AT YOUR REQUEST TO DISCUSS THE TENTATIVE RESULTS OF OUR ONGOING REVIEW OF THE FEDERAL PIPELINE SAFETY PROGRAM. THE DEPARTMENT OF TRANSPORTATION HAS NOT BEEN GIVEN AN OPPORTUNITY TO FORMALLY COMMENT ON OUR FINDINGS.

PIPELINE SAFETY

GAS AND HAZARDOUS LIQUID PIPELINES IN THE UNITED STATES TOTAL ABOUT 1.7 MILLION MILES AND TRANSPORT MORE THAN ONE-HALF OF THE NATION'S ENERGY SUPPLY. THESE PIPELINES CARRY LARGE QUANTITIES OF EXTREMELY VOLATILE SUBSTANCES, OFTEN UNDER HIGH PRESSURE, AND EXPOSE LARGE SEGMENTS OF THE POPULATION TO POTENTIALLY CATASTROPHIC INCIDENTS.

ANNUALLY, THERE ARE HUNDREDS OF THOUSANDS OF PIPELINE LEAKS, MOST OF WHICH ARE DISCOVERED AND REPAIRED BEFORE MAJOR INCIDENTS CAN OCCUR. UNFORTUNATELY, A NUMBER OF THESE LEAKS DO RESULT ANNUALLY IN ABOUT 50 DEATHS AND 350 SERIOUS

INJURIES. CONSIDERING THE MANY MILES OF PIPELINES, THESE STATISTICS INDICATE THAT PIPELINE TRANSPORTATION IS RELATIVELY SAFE. NEVERTHELESS, WITH THE MANY INDIVIDUAL SYSTEMS OF DIVERSE SIZE, AGE, MATERIALS, AND OVERALL QUALITY, AS WELL AS THE SEVERAL THOUSAND OPERATORS OF VARYING CAPABILITIES, THERE IS A VERY REAL AND CONTINUOUS CONCERN OVER THE CATASTROPHIC POTENTIAL OF THE FLAMMABLE AND EXPLOSIVE MATERIALS WHICH MOVE THROUGH THE SYSTEM.

IN ADDITION TO THE PRIMARY CONCERN FOR PUBLIC SAFETY, PIPELINE ACCIDENTS AND LEAKS ALSO RESULT IN THE LOSS OF VALUABLE ENERGY RESOURCES AND ENVIRONMENTAL POLLUTION. ALTHOUGH ADEQUATE STATISTICS ON THE EXTENT OF SUCH LOSSES ARE NOT AVAILABLE, A NUMBER OF SOURCES INDICATE THAT LEAKS HAVE RESULTED IN SUBSTANTIAL LOSSES.

OFFICE OF PIPELINE SAFETY OPERATIONS

THE OFFICE OF PIPELINE SAFETY OPERATIONS IS AN ELEMENT OF THE MATERIALS TRANSPORTATION BUREAU WITHIN THE DEPARTMENT OF TRANSPORTATION. IT IS RESPONSIBLE FOR DEVELOPING AND ADMINISTERING A COMPREHENSIVE AND EFFECTIVE PIPELINE SAFETY PROGRAM. THE OFFICE HAS A BUDGET OF \$4.78 MILLION TO CARRY OUT ITS RESPONSIBILITIES IN FISCAL YEAR 1978. ITS BASIC AUTHORITY, WHICH COVERS ESSENTIALLY ALL GAS AND HAZARDOUS LIQUIDS TRANSPORTED BY PIPELINE, IS PROVIDED PRIMARILY BY THE SO CALLED TRANSPORTATION OF EXPLOSIVES ACT (18 U.S.C. 831-835), THE NATURAL

GAS PIPELINE SAFETY ACT OF 1968, AS AMENDED (49 U.S.C. 1671 ET. SEQ.), AND TITLE I OF THE TRANSPORTATION SAFETY ACT OF 1974 (49 U.S.C. 1801 ET. SEQ.).

THE PIPELINE SAFETY OFFICE'S EFFECTIVENESS IN CARRYING OUT ITS MANDATED RESPONSIBILITIES HAS BEEN ADVERSELY AFFECTED BY CERTAIN WEAKNESSES IN ITS PROGRAM.

INCOMPLETE OR INEFFECTIVE SAFETY REGULATIONS

THE REGULATIONS ISSUED BY THE PIPELINE SAFETY OFFICE DO NOT COVER ALL PIPELINE FACILITIES AND, IN SOME CASES, ARE NOT EFFECTIVE FOR ENSURING THE PUBLIC SAFETY.

ALTHOUGH SEVERAL SERIOUS ACCIDENTS HAVE OCCURRED IN RECENT YEARS INVOLVING INTRASTATE LIQUID PIPELINES AND GAS GATHERING LINES IN RURAL AREAS, SAFETY REGULATIONS GOVERNING THESE PIPELINES HAVE NOT BEEN ISSUED.

ALSO, EXEMPTIONS WHICH MAY NOT BE IN THE BEST PUBLIC INTEREST ARE PROVIDED IN THE EXISTING REGULATIONS FOR CERTAIN TYPES OF PIPELINE SYSTEMS. SMALL PETROLEUM GAS SYSTEMS, FOR EXAMPLE, ARE EXEMPTED FROM FEDERAL SAFETY JURISDICTION ON THE BASIS OF THE NUMBER OF CUSTOMERS THEY SERVE WITHOUT REGARD FOR THE NUMBER OF PEOPLE WHO MAY BE EXPOSED TO THEIR POTENTIAL HAZARDS.

CERTAIN EXISTING PIPELINE SAFETY REGULATIONS ALSO SHOULD BE STRENGTHENED TO PROVIDE EFFECTIVE PROTECTION TO THE PUBLIC. ONE AREA IN NEED OF PRIORITY ATTENTION INVOLVES LIQUEFIED NATURAL GAS FACILITIES. STANDARDS DEVELOPED BY THE NATIONAL

FIRE PROTECTION ASSOCIATION WERE INCORPORATED INTO THE FEDERAL GAS PIPELINE SAFETY REGULATIONS IN 1972 AS AN INTERIM MEASURE PENDING DEVELOPMENT OF COMPREHENSIVE FEDERAL STANDARDS. DESPITE WIDESPREAD CONCERNS AS TO THE INADEQUACY OF THESE STANDARDS, AND DESPITE THE INCREASING USE MADE OF THIS POTENTIALLY HAZARDOUS COMMODITY, COMPREHENSIVE FEDERAL STANDARDS FOR LIQUEFIED NATURAL GAS FACILITIES HAVE NOT BEEN ISSUED.

ALTHOUGH THE OFFICE HAS BEEN SLOW IN ACTING, IT IS CURRENTLY TAKING THE INITIAL STEPS TOWARD PROMULGATING SUCH STANDARDS. UNLESS STANDARDS ARE PROMPTLY DEVELOPED, THE LARGE NUMBER OF FACILITIES CURRENTLY BEING CONSTRUCTED OR PLANNED WILL PROGRESS TO A POINT WHERE NEEDED SAFETY PROVISIONS CAN NOT BE REASONABLY INCORPORATED INTO THEIR DESIGN OR CONSTRUCTION.

PRIORITY ATTENTION ALSO NEEDS TO BE GIVEN TO THE TRANSPORTATION OF HIGHLY VOLATILE LIQUIDS, SUCH AS LIQUEFIED PETROLEUM GAS AND ANHYDROUS AMMONIA. ALTHOUGH THESE LIQUIDS ARE MUCH MORE HAZARDOUS THAN OTHER LIQUIDS, FEDERAL SAFETY REGULATIONS DO NOT DISTINGUISH AMONG THE VARIOUS LIQUID COMMODITIES BY REQUIRING HIGHER LEVELS OF SAFETY FOR THE MORE HAZARDOUS ONES. FROM 1968 THROUGH 1976, THESE HIGHLY VOLATILE LIQUIDS ACCOUNTED FOR ONLY 10 PERCENT OF THE LIQUID PIPELINE ACCIDENTS BUT WERE RESPONSIBLE FOR 65 PERCENT OF THE DEATHS, 56 PERCENT OF THE INJURIES, AND 32 PERCENT OF THE PROPERTY DAMAGE. DESPITE THE DISPROPORTIONATE CASUALTIES AND DAMAGE

ATTRIBUTED TO THESE LIQUIDS, AND DESPITE REPEATED RECOMMENDATIONS BY THE NATIONAL TRANSPORTATION SAFETY BOARD, MORE STRINGENT PIPELINE SAFETY STANDARDS HAVE NOT BEEN ISSUED.

REGULATIONS GOVERNING LIQUID PIPELINES ARE GENERALLY MUCH LESS COMPREHENSIVE AND EXACTING THAN THE GAS REGULATIONS AND, AS A RESULT, DO NOT OFFER THE SAME DEGREE OF PROTECTION FROM POTENTIAL HAZARDS. FOR EXAMPLE, ALTHOUGH BOTH SETS OF REGULATIONS REQUIRE OPERATORS TO ESTABLISH WRITTEN EMERGENCY PROCEDURES, ONLY THE GAS REGULATIONS ARE SPECIFIC AS TO WHAT THESE PROCEDURES MUST COVER AND WHAT STEPS ARE NECESSARY TO ENSURE THAT EMERGENCY SITUATIONS ARE PROPERLY HANDLED. FURTHER, THE GAS REGULATIONS REQUIRE MORE STRINGENT SAFETY STANDARDS FOR PIPELINES LOCATED IN MORE DENSELY POPULATED AREAS. THE LIQUID REGULATIONS DO NOT. ALTHOUGH THE PIPELINE SAFETY OFFICE HAS OVER THE YEARS RESPONDED TO NATIONAL TRANSPORTATION SAFETY BOARD RECOMMENDATIONS BY STATING THAT IT PLANNED A GENERAL REVISION AND UPDATE OF THE LIQUID REGULATIONS, THIS HAS NOT BEEN DONE.

IN ADDITION, THERE ARE MANY OTHER AREAS WHERE PIPELINE SAFETY OFFICIALS BELIEVE THAT THE REGULATIONS SHOULD BE CHANGED SO AS TO BETTER ASSURE THE PUBLIC SAFETY OR TO ELIMINATE UNNECESSARY BURDENS UPON THE INDUSTRY. THERE HAS NOT BEEN, HOWEVER, A SYSTEMATIC REVIEW OF THE REGULATIONS TO ADDRESS SUCH CONCERNS.

PIPELINE SAFETY COMPLIANCE EFFORTS
NEED STRENGTHENING

THE ISSUANCE OF SAFETY STANDARDS DO NOT BY THEMSELVES INCREASE THE LEVEL OF PUBLIC SAFETY. OPERATOR COMPLIANCE WITH THE STANDARDS IS NEEDED.

THE PIPELINE SAFETY OFFICE DETERMINES COMPLIANCE THROUGH THE INSPECTION OF PIPELINE OPERATORS AND TAKES ENFORCEMENT ACTIONS AGAINST OPERATORS WHO ARE NOT IN COMPLIANCE WITH THE STANDARDS.

THE INSPECTIONS USUALLY TAKE 2 DAYS-1 DAY FOR CHECKING RECORDS AND 1 DAY FOR FACILITY INSPECTIONS. SUCH INSPECTIONS DO NOT PROVIDE AN ADEQUATE BASIS FOR JUDGING A COMPANY'S OPERATIONS. ONE TOP FIELD OFFICIAL SAID THAT A GOOD COMPLIANCE INSPECTION WOULD TAKE AT LEAST A WEEK.

GUIDANCE GIVEN TO FEDERAL PIPELINE FIELD STAFF DOES NOT PROVIDE SPECIFIC CRITERIA ON WHAT CONSTITUTES AN ADEQUATE INSPECTION. IN ADDITION, GUIDANCE ON HOW TO ALLOCATE STAFF RESOURCES NEEDS REVISION. THE ALLOCATION NEEDS TO GIVE GREATER WEIGHT TO THE PIPELINE SYSTEMS WITH THE GREATEST SAFETY PROBLEMS, AS DEMONSTRATED BY STATISTICS ON SAFETY STANDARDS VIOLATIONS AND LEAK AND CASUALTY DATA.

THE GUIDANCE GIVEN TO THE FIELD STAFF LISTED CERTAIN REGULATIONS WHICH WERE TO BE EMPHASIZED DURING INSPECTIONS. HOWEVER, EMPHASIS WAS GIVEN TO REGULATIONS WHICH ARE EASIEST TO

ENFORCE RATHER THAN REGULATIONS WHICH, IF NOT COMPLIED WITH, POSE THE GREATEST SAFETY HAZARDS.

ALSO, USING SELECTED DATA RECEIVED FROM THE OPERATORS, CRITERIA WERE DEVELOPED TO ENABLE FEDERAL PIPELINE FIELD STAFF TO GIVE PRIORITY ATTENTION TO THOSE PIPELINE OPERATIONS WHICH PRESENT THE GREATEST SAFETY RISKS. UNFORTUNATELY, THE DATA USED TO RANK THE OPERATORS WAS INCOMPLETE AND INACCURATE. IN ADDITION, THE CRITERIA THEMSELVES WERE QUESTIONABLE. THE FIELD STAFF NOTED THAT OFTEN THERE WAS LITTLE CORRELATION BETWEEN OPERATOR RANKINGS AND ACTUAL OPERATOR PERFORMANCE AS EVIDENCED BY THEIR INSPECTIONS.

A VIGOROUS, WELL-PUBLICIZED PROGRAM OF MEANINGFUL ACTIONS AGAINST THOSE OPERATORS WHO DO NOT COMPLY IS ESSENTIAL IN ENCOURAGING COMPLIANCE. LITTLE EMPHASIS HAS BEEN PLACED, HOWEVER, ON THE USE OF PUNITIVE MEASURES AGAINST OPERATORS FOUND TO BE IN VIOLATION OF THE ESTABLISHED STANDARDS. INSTEAD, EMPHASIS HAS BEEN ON OBTAINING VOLUNTARY OPERATOR COMPLIANCE. ONLY WHERE OPERATORS FAIL TO INITIATE CORRECTIVE ACTIONS, OR PROMISE TO DO SO, ARE PENALTIES NORMALLY CONSIDERED. FROM THE INCEPTION OF THE PIPELINE SAFETY OFFICE IN 1968 THROUGH 1977, ONLY 14 ASSESSMENTS HAD BEEN SETTLED THROUGH PENALTY COLLECTIONS TOTALING \$12,250. IN ADDITION, WHEN THE OPERATORS INFORM THE OFFICE OF WHAT ACTIONS HAVE BEEN TAKEN OR WERE PLANNED TO CORRECT DEFICIENCIES NOTED, THE OFFICE ACCEPTS

THOSE RESPONSES WITHOUT VERIFICATION. THIS POLICY, COMBINED WITH THE BASIC WEAKNESSES IN THE INSPECTION PROGRAM, APPEARS TO PROVIDE LITTLE INCENTIVE FOR OPERATOR COMPLIANCE.

BOTH FEDERAL PIPELINE FIELD STAFF AND STATE OFFICIALS BELIEVE THAT STRICTER ENFORCEMENT WOULD ENCOURAGE GREATER OPERATOR COMPLIANCE.

A NUMBER OF FACTORS HAVE LIMITED THE FEDERAL PIPELINE OFFICE'S ABILITY TO ENFORCE ITS SAFETY PROGRAM. THESE INCLUDE (1) A SMALL FIELD STAFF, (2) LACK OF POSITIVE GUIDANCE IN PREPARING NONCOMPLIANCE CASES, (3) LACK OF CIVIL PENALTY AUTHORITY AGAINST LIQUID PIPELINE OPERATORS, (4) THE UNIQUE PROBLEMS OF SMALL OPERATORS, AND (5) THE GENERAL IMPRECISENESS OF THE SAFETY REGULATIONS.

NEED TO STRENGTHEN THE STATE PROGRAMS

THE NATURAL GAS PIPELINE SAFETY ACT OF 1968 PERMITS STATES TO ASSUME RESPONSIBILITY FOR ENFORCING THE SAFETY STANDARDS FOR INTRASTATE GAS PIPELINES AND PROVIDES FOR STATE ASSISTANCE IN THE ENFORCEMENT OF THE SAFETY STANDARDS FOR INTERSTATE PIPELINES.

ALTHOUGH ALL STATES PARTICIPATE IN THE FEDERAL PROGRAM, NONE OF THE STATES HAVE ACCEPTED RESPONSIBILITY FOR ALL TYPES OF GAS PIPELINE OPERATIONS. THE STATES HAVE A MAJOR ENFORCEMENT ROLE, HOWEVER, BECAUSE 2,300 OF THE 2,600 GAS PIPELINE OPERATORS ARE UNDER STATE JURISDICTION. DURING 1977 THE STATES RECEIVED \$2.3 MILLION IN FEDERAL GRANTS TO

ASSIST THEM IN CARRYING OUT THIS ROLE. SOME OF THE STATE PROGRAMS HAVE BEEN INADEQUATE AND INEFFECTIVE.

THE PIPELINE SAFETY OFFICE NEEDS TO PROVIDE GUIDANCE TO THE STATE AGENCIES ON WHAT CONSTITUTES AN ADEQUATE INSPECTION AND ENFORCEMENT PROGRAM. INSPECTION AND ENFORCEMENT PROCEDURES AMONG THE 12 STATES WE REVIEWED DIFFERED GREATLY IN AREAS SUCH AS THE CONTENT AND DEPTH OF INSPECTIONS, USE OF CHECKLISTS AND WRITTEN INSPECTION REPORTS, AND THE NOTIFICATION AND FOLLOW-UP WITH OPERATORS WHO VIOLATE SAFETY STANDARDS.

ALTHOUGH MOST STATES CAN ASSESS PENALTIES AGAINST OPERATORS WHO VIOLATE SAFETY STANDARDS, NONE OF THE STATES WE REVIEWED, HAVE DONE SO. INSTEAD, THEY SOUGHT VOLUNTARY COMPLIANCE WITH THE PIPELINE SAFETY REQUIREMENTS.

THE ACT REQUIRES THE FEDERAL PIPELINE SAFETY OFFICE TO ANNUALLY APPROVE STATE PARTICIPATION IN THE GAS SAFETY PROGRAM AND TO ENSURE ENFORCEMENT OF FEDERAL SAFETY STANDARDS. IF THE OFFICE DETERMINES THAT ENFORCEMENT IS NOT ADEQUATE, IT MAY REFUSE TO CERTIFY THE STATE AND ASSERT FEDERAL JURISDICTION OVER THE GAS SAFETY PROGRAM.

HOWEVER, THE OFFICE HAS NEVER ESTABLISHED MINIMUM CRITERIA RELATING TO PROGRAM QUALITY TO QUALIFY A STATE FOR CERTIFICATION. SOME STATES MAY HAVE INADEQUATE PROGRAMS BUT CONTINUE TO PARTICIPATE IN THE FEDERAL PROGRAM. UNLESS CRITERIA ARE ESTABLISHED AND ENFORCED, THE OFFICE CANNOT BE

ASSURED THAT THE PUBLIC IS ADEQUATELY PROTECTED. WHERE THE PUBLIC IS NOT ADEQUATELY PROTECTED AND THE PIPELINE OFFICE DOES NOT BELIEVE IMPROVEMENTS ARE LIKELY TO OCCUR, IT SHOULD EVALUATE THE NEED TO ASSERT FEDERAL JURISDICTION OVER PIPELINES IN THOSE STATES.

OTHER SAFETY ISSUES NEEDING ATTENTION

THERE ARE A NUMBER OF OTHER PIPELINE SAFETY ISSUES WHICH, ALTHOUGH THEY REPRESENT ACTUAL OR POTENTIAL SAFETY PROBLEMS, HAVE NOT RECEIVED ADEQUATE ATTENTION. FOR EXAMPLE, ONE AREA THAT HAS RECEIVED LITTLE ATTENTION FROM THE PIPELINE SAFETY OFFICE IS THE COMPLIANCE INSPECTION OF THE MANY THOUSANDS OF MASTER METER OPERATORS WHO PROVIDE GAS THROUGH THEIR OWN LINES TO FACILITIES SUCH AS APARTMENT COMPLEXES AND TRAILER PARKS. MANY OF THESE OPERATORS MAY NOT BE AWARE OF THE FEDERAL SAFETY REGULATIONS. IN THE 22 STATES WHICH HAVE NOT ASSUMED JURISDICTION OVER SUCH OPERATORS, THE PIPELINE SAFETY OFFICE IS RESPONSIBLE FOR OPERATOR INSPECTIONS AND ENFORCEMENT OF SAFETY STANDARDS. HOWEVER, IT IS NOT MONITORING THESE OPERATORS.

ANOTHER EXAMPLE OF AN ISSUE IN NEED OF GREATER ATTENTION IS THE DAMAGE TO PIPELINES CAUSED BY OUTSIDE FORCES SUCH AS CONSTRUCTION EQUIPMENT. SUCH DAMAGE REPRESENTS THE MAJOR CAUSE OF SERIOUS PIPELINE LEAKS. ALTHOUGH THE OFFICE HAS LONG BEEN AWARE OF THE SERIOUSNESS OF THIS PROBLEM, IT HAS NOT UNTIL RECENTLY CONDUCTED A STUDY TO COMPREHENSIVELY DEFINE

THE PROBLEM AND SEEK SOLUTIONS TO IT. USING THE RESULTS OF THE STUDY TOGETHER WITH INPUT FROM OTHER SOURCES, THE OFFICE SHOULD TAKE AN ACTIVE ROLE IN DEVELOPING AND PROMOTING EFFECTIVE SOLUTIONS TO THIS PROBLEM.

NEED FOR A MORE EFFECTIVE DATA SYSTEM

THE PIPELINE SAFETY OFFICE HAS ACCUMULATED A GREAT DEAL OF DATA, BUT HAS MADE ONLY LIMITED USE OF IT IN CONDUCTING ITS PROGRAM. THE DATA HAS NOT BEEN USED TO SYSTEMATICALLY IDENTIFY PROBLEMS NEEDING PRIORITY ATTENTION OR TO IDENTIFY SAFETY TRENDS IN PIPELINE OPERATIONS. SUCH ANALYSES COULD BE USEFUL IN IDENTIFYING WEAKNESSES IN EXISTING REGULATIONS, PROBLEM OPERATORS WHO MIGHT NEED GREATER ATTENTION, OR PRIORITY REGULATIONS WHICH NEED TO BE EMPHASIZED DURING INSPECTIONS.

THE USEFULNESS OF THE CURRENT DATA SYSTEM IS LIMITED, HOWEVER, BY THE ABSENCE OF CERTAIN DATA ESSENTIAL TO AN EFFECTIVE DATA SYSTEM AND INACCURACIES IN THE PRESENT DATA BASE.

IN LIGHT OF THE SIZE OF THE NATIONWIDE PIPELINE SYSTEM AND THE IMPORTANCE OF THE PIPELINE SAFETY OFFICE'S ROLE IN DEVELOPING AND ENFORCING AN EFFECTIVE PROGRAM, IT IS IMPORTANT THAT THE OFFICE MAKE THE BEST USE OF ITS RESOURCES. A COMPREHENSIVE AND ACCURATE DATA COLLECTION AND ANALYSIS SYSTEM CAN BE AN IMPORTANT TOOL FOR DOING THIS.

FEDERAL PIPELINE SAFETY OFFICE STAFFING

THE OFFICE'S EFFECTIVENESS IN DEVELOPING AND ENFORCING A COMPREHENSIVE PIPELINE SAFETY PROGRAM HAS BEEN HAMPERED BY

STAFFING PROBLEMS. THE OFFICE HAS HAD A PERMANENT DIRECTOR DURING ONLY 3 OF THE 10 YEARS THAT THE PIPELINE SAFETY PROGRAM HAS BEEN IN THE DEPARTMENT OF TRANSPORTATION. THIS RAISES SERIOUS QUESTIONS AS TO THE PRIORITY GIVEN TO THE PROGRAM, AS WELL AS HOW EFFECTIVE AN ACTING DIRECTOR CAN BE IN MAKING DIFFICULT OR CONTROVERSIAL DECISIONS.

HISTORICALLY, THE OFFICE HAS OPERATED WITH A SMALL STAFF. IN FISCAL YEAR 1977 IT HAD 26 PROFESSIONAL AND 11 CLERICAL POSITIONS. HAVING A SMALL STAFF APPEARS TO HAVE IMPACTED MOST ON THE WORKLOAD OF THE FIVE REGIONAL OFFICES WHICH ARE CHARGED WITH ENSURING OPERATOR COMPLIANCE WITH THE SAFETY STANDARDS. EACH REGIONAL OFFICE IS STAFFED BY TWO PROFESSIONALS AND A SECRETARY, WHO MUST MONITOR (1) THE GAS PIPELINE SAFETY PROGRAMS CONDUCTED BY THE STATES WITH JURISDICTION OVER ABOUT 2,300 OPERATORS, (2) ABOUT 300 GAS PIPELINE OPERATORS NOT SUBJECT TO STATE JURISDICTION, AND (3) ABOUT 125 LIQUID PIPELINE OPERATORS. THE STAFFING, PARTICULARLY IN THE REGIONAL OFFICES, IS NOT ADEQUATE FOR CARRYING OUT THE MANDATED RESPONSIBILITIES IN A COMPREHENSIVE, EFFECTIVE AND TIMELY MANNER.

MR. CHAIRMAN, THIS CONCLUDES MY STATEMENT. WE WILL BE PLEASED TO RESPOND TO ANY QUESTIONS YOU OR THE MEMBERS OF THE SUBCOMMITTEE MAY HAVE.

PIPELINE SAFETY ISSUES
IN NEED OF PRIORITY ATTENTION

FEDERAL PIPELINE SAFETY REGULATIONS

Problem A: Existing pipeline safety regulations do not cover all hazardous material pipelines.

- Regulations have not been issued for intrastate liquid pipelines or for gas gathering lines in rural areas. In addition, certain pipeline systems (including small petroleum gas systems, interplant facilities, and pipelines operated at relatively low stress levels) have been exempted from Federal safety regulation.
- Safety officials, noting the hazardous commodities carried and the serious accidents which have occurred on unregulated pipelines, have recommended that all pipelines involving the public safety be subject to safety regulation.

Action needed: Extend the Federal pipeline safety regulations over all hazardous material pipelines which pose potential hazards to the public safety.

Problem B: Improved Federal standards for liquefied natural gas (LNG) facilities are needed.

- Standards developed by the National Fire Protection Association were incorporated into the Federal regulations in 1972 only as an interim measure pending development of comprehensive Federal standards. Despite widespread concerns as to the inadequacy of these interim standards, improved Federal standards have not yet been issued.
- Because of the seriousness of the potential hazards associated with LNG and because of the large number of LNG facilities being constructed or expected to be constructed in the near future, the absence of comprehensive Federal safety standards in this area has become an issue of national concern.
- In April 1977, as a first step in the formal rule-making process, OPSO published an Advance Notice of Proposed Rulemaking regarding the development of Federal safety standards for LNG facilities.

Action needed: Promptly develop and issue improved standards for liquefied natural gas facilities before the large number of such facilities currently being constructed or planned progress to a point where needed safety provisions cannot be reasonably incorporated into their design or construction.

Problem C: Stronger pipeline safety standards are needed for highly volatile liquids.

--Certain of the hazardous liquids such as liquefied petroleum gas and anhydrous ammonia are much more hazardous than others because of their high volatility. Federal pipeline safety regulations do not require higher levels of safety for the more hazardous ones.

--From 1968 through 1976 these highly volatile liquids accounted for only 10 percent of the reportable liquid pipeline accidents but were responsible for 65 percent of the deaths, 56 percent of the injuries, and 32 percent of the property damage.

Action needed: Give prompt attention to the development and issuance of stronger standards for the pipeline transportation of highly volatile liquids.

Problem D: Regulations governing the transportation of hazardous liquids by pipeline are less comprehensive and exacting than the gas regulations.

--the liquid safety regulations do not provide the same degree of protection from potential pipeline hazards as the gas regulations.

--NTSB, in recommendations dating back to 1971, has pointed out the need to upgrade and clarify the liquid pipeline regulations and, where appropriate, to make them similar to requirements contained in the gas pipeline regulations. Similar recommendations have been received from OPSO field personnel.

Action needed: Undertake a general revision and update of the liquid pipeline safety regulations so that they better assure the public safety.

Problem E: Since they were first adopted, there has not been a systematic review of the pipeline safety regulations to assure that they continue to be effective or that needed revisions are being made.

--A major problem with the existing regulations, both for those required to comply with them as well as for those required to determine compliance, is that they do not always establish the definitive and objective criteria necessary to clearly convey their intent or to guide operators in conducting safe pipeline operations.

--Discussions with pipeline safety officials and reviews of available documentation indicate that there are many areas where the regulations may need to be strengthened or changed so as to better assure the public safety.

Action needed: Undertake a systematic and thorough review of the pipeline safety regulations to identify and address existing problems and weaknesses in them.

STATE PIPELINE SAFETY PROGRAMS

Problem A: State pipeline safety agencies have not been provided specific guidance as to what constitutes an adequate inspection and enforcement program.

--With jurisdiction over approximately 2,300 of the 2,600 gas pipeline operators, the States have a major role in the enforcement of the gas pipeline safety regulations.

--Major differences exist in the overall quality of State programs.

--State inspection and enforcement procedures differ greatly as to what areas are inspected, the extent of inspections, the use of checklists and written inspection reports, and the notification and follow-up of operators who violate safety standards.

Action needed: OPSO needs to expedite its current efforts to develop guidance for the States in conducting effective gas pipeline safety programs.

Problem B: There is no minimum program quality criteria for judging the adequacy of each State's participation in the gas pipeline safety program.

--OPSO must annually approve State participation in the Federal program, and has the authority to refuse to certify a State agency for participation and to assert Federal jurisdiction over the gas safety program in that State.

--Although some States appear to have inadequate programs, no certification has ever been rejected.

Action needed: OPSO needs to establish and use minimum program quality criteria for certification of State programs. Where State programs do not meet the established criteria, OPSO should consider the need to assert Federal jurisdiction over those programs.

FEDERAL COMPLIANCE EFFORTS

Problem A: OPSO's inspections of operators do not ensure that potential pipeline hazards are being adequately addressed.

--Operator inspections are of short duration and limited coverage and do not provide an adequate basis for judging the overall safety of an operator's system.

--Emphasis has not been given to intrastate systems (either jurisdictional to OPSO or to the States) where the greatest safety problems exist.

--Priority safety standards based on pipeline failure data have not been designated for emphasis during operator compliance inspections.

--Field experience with the system developed for selecting operators for inspection indicates that it does not accurately reflect the relative safety performance of the operators.

Action needed: Conduct more thorough operator compliance inspections and ensure that particular emphasis is given to identified priority problem areas and operators.

Problem B: OPSO has not conducted an active enforcement program against operators found in violation of the Federal pipeline safety standards.

--An active program of meaningful punitive measures against those who do not comply with established safety standards is essential for encouraging compliance.

--Since inception of the program in 1968 through 1977, only 14 violation cases have been settled through civil penalty collections, totaling \$12,250. No

criminal actions have been brought against pipeline operators and no injunctive actions have been taken.

- Emphasis has been upon obtaining voluntary corrective action after operators are notified of violations. This policy, together with the basic weaknesses in OPSO's inspection program, is not effective in encouraging operator compliance.

Action needed: Conduct a more active enforcement program against those operators who do not comply with the pipeline safety standards. Attention also should be given to selectively verifying corrective actions and addressing factors (including the absence of civil penalty authority against liquid pipeline operators) which adversely affect enforcement efforts.

PIPELINE SAFETY DATA SYSTEM

Problem A: Although a great deal of pipeline safety data has been accumulated, OPSO has made only limited use of it in conducting its program.

- Good data analysis is an invaluable tool for identifying safety problems, determining their underlying causes, and developing satisfactory solutions to them.
- A program of systematic data analysis would allow OPSO to effectively and efficiently allocate its resources to priority problem areas and provide it with more rational support for its regulatory and compliance programs.

Action needed: Develop a program of systematic and comprehensive analysis of the data collected and utilize this information in conducting the Federal pipeline safety program.

Problem B: The usefulness of the current data system is limited by the absence of certain essential data as well as by inaccuracies in the existing data base.

- Valuable statistical information on all pipeline systems and serious leaks which occur on these systems is not required to be submitted. The most notable exceptions include: (1) the absence of detailed information concerning serious pipeline leaks occurring on the many small and medium size gas distribution systems (those with 100,000 or fewer customers); and (2) the absence of annual reports from liquid pipeline operators.
- The efficiency and effectiveness of the Federal pipeline safety program could be improved by incorporating into the data system selected program management information. For example, inclusion of past operator inspection and compliance data, combined with the data available from the operators' annual reports and individual leak reports, could provide OPSO with a rational basis for conducting operator inspections and assessing penalties.
- Inaccuracies in the data base are the result of incomplete or inaccurate operator reports, ambiguities in the reporting requirements and definitions, and errors in data processing.

Action needed: Develop a more comprehensive and accurate data system which will include information on all pipeline systems and serious leaks as well as related program management information.

STAFFING RESOURCES

Problem A: The Federal pipeline safety program has had a permanent director during only 3 of its 10 years.

- The present acting director has held that position since July 1975.
- Such a situation is not conducive to effective and timely decisionmaking and raises serious questions as to the priority given the pipeline safety program by the Department.

Action needed: The expeditious appointment of a permanent OPSO director.

Problem B: The small size of OPSO's staff has adversely affected its ability to deal with its mandated responsibilities in a comprehensive, effective, and timely manner.

--OPSO has an authorized staffing level of 52 with 37 persons currently on-board.

--Considering the magnitude and growth in its responsibilities in recent years and the impact of the Federal pipeline safety program on the public safety, serious attention needs to be given to OPSO's present and future staffing requirements.

--The small staff appears to have its greatest impact on OPSO's regulatory and regional office programs where serious problems and weaknesses continue to exist.

Action needed: OPSO needs to undertake a thorough review of its mandated responsibilities and the adequacy of its current and programmed staffing levels and allocations to carry out these responsibilities in a comprehensive, effective, and timely manner. Immediate attention should be given to filling those authorized positions which are currently vacant.

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