Gas and hazardous liquid pipelines in the United States total about 1.7 million miles and transport more than half of the Nation's energy supply. The Office of Pipeline Safety Operations, an element of the Materials Transportation Bureau within the Department of Transportation, is responsible for developing and administering a comprehensive and effective pipeline safety program. 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. Regulations governing liquid pipelines are generally less comprehensive and exacting than gas regulations and, as a result, do not offer the same degree of protection from potential hazards. Guidance given to Federal Pipeline field staff does not provide specific criteria on what constitutes an adequate inspection, and guidance on how to allocate staff resources needs revision. Factors limiting the Federal Pipeline office's ability to enforce its safety program include: a small field staff, lack of positive guidance in preparing noncompliance cases, lack of civil penalty authority against liquid pipeline operations, the unique problems of small operators, and the general imprecision of safety regulations.
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 POTEN-
TIANLY 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 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 CONCLUSIVE 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 1963 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 IN-
CLUDE (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 IMPRECISE-
NESS 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 STAN-
DARDS FOR INTERSTATE PIPELINES.

ALTHOUGH ALL STATES PARTICIPATE IN THE FEDERAL PRO-
GRAM, 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 14 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.