



DEPARTMENT OF TRANSPORTATION
HAZARDOUS MATERIALS REGULATIONS BOARD
WASHINGTON, D.C. 20590

Federal Railroad Administration
[49 CFR Part 180]

[Docket No. HM-6; Notice No. 68-4]

TRANSPORTATION OF HAZARDOUS
MATERIALS BY PIPELINE

Notice of Proposed Rule Making

The Hazardous Materials Regulations Board is considering amending Part 180 of the Hazardous Materials Regulations of the Department of Transportation to set forth design, construction, operation, and maintenance, and test requirements to apply to any carrier transporting hazardous materials (other than water or natural or artificial gas) by pipeline in interstate or foreign commerce.

Interested persons are invited to participate in the making of the proposed rule by submitting such written information, views, or arguments as they may desire. Communications should identify the docket number [HM-6] and be submitted in duplicate to the Secretary, Hazardous Materials Regulations Board, Department of Transportation, 400 Sixth Street SW., Washington, D.C. 20590. All communications received on or before November 12, 1968, will be considered before taking final action on the proposed rule. Comments filed after that date will be considered so far as practicable. The proposal contained in this notice may be changed in the light of comments received. All comments received will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested parties.

Procedural rules. On May 22, 1968, the Hazardous Materials Regulations Board adopted a new Part 170 "Rule-making Procedures of the Hazardous Materials Regulations Board" to Title 49 of the Code of Federal Regulations (33 F.R. 8277). New Part 170, which took effect July 1, 1968, applies to all rule-making activities concerning hazardous materials. This proposed rule-making action will therefore be subject to the procedural rules set forth in Part 170. Any person who desires a copy of that part may obtain one by writing to the Secretary of the Hazardous Materials Regulations Board at the above address.

Paragraph (c) of § 170.1 states in part "The signature of the Board member issuing a notice or adopting a regulation for a mode of transportation determines the applicability of that notice or rule to that mode of transportation . . ." Since the authority to regulate pipelines has been delegated to the Federal Railroad Administration (§ 1.4(d)(6) of the regulations of the Office of the Secretary), this notice is signed only by the Administrator of the Federal Railroad Administration.

Historical background — Legislative background. Although it had the authority for many years before 1960, the Interstate Commerce Commission did not adopt any safety regulations applicable to the oil pipeline industry. In 1960, apparently through inadvertence, Congress deleted this authority. In 1965, the oil pipeline industry asked Congress to restore Federal authority so that there would be a single Federal regulation instead of conflicting local regulations.

Regulatory background. The Interstate Commerce Commission issued a notice on October 5, 1965 (30 F.R. 13266) instituting a proceeding for the purpose of formulating regulations for the safe transportation by pipeline of explosives and other dangerous articles. In response to that notice (which amounted to an advance notice of proposed rule making) the Interstate Commerce Commission received over 25 comments including three major code recommendations. After evaluating the comments received, the Commission on January 16, 1967, issued a notice of proposed rule making (32 F.R. 1098) setting forth specific proposals for a Part 180 to be added to Title 49 of the Code of Federal Regulations. In issuing that notice, the Commission stated that, in the time available, it was not possible to develop a complete set of regulations and therefore the proposed Part 180 contained only general regulations explaining the purpose, scope and applicability and a subpart on accident reporting. The Commission stated that ultimately the proposed Part 180 would cover design, materials, construction, nondestructive testing, operations, and maintenance of new systems, and would also cover requirements for pipeline constructed before the effective date of the regulation.

Before the Commission took final action on this notice, jurisdiction to regulate the transportation of explosives and other dangerous articles was transferred, effective April 1, 1967, to the Department of Transportation (section 6 (e) (4) and (f) (3) (A) of the Department of Transportation Act, 49 U.S.C. 1655 (e) (4) and (f) (3) (A)). By § 1.4(d)(6) of Part 1 of the regulations of the Office of the Secretary of Transportation this authority was, so far as it relates to pipelines, delegated to the Administrator of the Federal Railroad Administration. On June 16, 1967, the Federal Railroad Administration issued a final rule adopting Part 180 virtually as proposed by the Interstate Commerce Commission (32 F.R. 9228) to become effective September 6, 1967. The effective date was subsequently postponed (32 F.R. 12851) and ultimately a revised Part 180 was adopted effective December 31, 1967 (32 F.R. 16040).

General description of proposed Part 180—carriers by pipeline.—This proposed Part 180 sets forth (Subparts C through G) design, construction, operation, and maintenance, and testing subparts, such as the Interstate Commerce Commission originally indicated would be forthcoming. The general provisions (proposed Subpart A) and the accident reporting provisions (proposed Subpart B) that took effect December 31, 1967, are restated in a slightly revised manner for the following reasons: (1) For ease of review of the entire proposed Part 180 by all interested parties; and (2) to make minor changes in the provisions already adopted consistent with the substance, style, and format of the remaining proposed subparts.

The substantive requirements proposed in Subparts C through G are based on all information now available, including comments submitted by interested parties as a result of the notices discussed above and material developed in numerous meetings with industry personnel and other interested persons, conducted both before and after establishment of the Department of Transportation.

Many of the provisions of the proposed regulation are based on existing industry standards. Some provisions propose higher standards, where it appears that an increased level of safety is both desirable and achievable. The final regulation will be based on all information available at the time it is issued, including comments received on this notice.

Subparts C through G are directed to pipelines constructed with steel pipe. Although information to prescribe standards for pipe made with other materials is not presently available, the proposed regulation will not impede the use of other materials. Section 180.8 would permit the use of pipelines constructed with other materials when the use of those materials will not lower safety standards. As the need is demonstrated, and as the necessary information becomes available, general requirements will be proposed for pipe made of materials other than steel. Commenters are requested to submit any available information, with respect to materials other than steel, that would be helpful in developing future regulations.

These proposed regulations are general "performance" type requirements rather than detailed "specification" type requirements of the type previously issued for the transportation of hazardous materials. By proposing regulations in this manner, the desired safety objective can be reached without impeding future industry innovations. The

goal is the safe transportation of certain materials through pipelines; the regulation relates to the goal, not the means used to achieve the goal.

As indicated previously, many of the provisions of the proposed regulation are based on existing industry standards. However, in certain areas there seems to be justification for going beyond present industry practice. It appears reasonable to require some proof that a pipeline, that may have been installed many years ago, is capable of withstanding a pressure in excess of its normal operating pressure. There will be differences of opinion (1) as to whether there should be periodic requalification and (2) if requalification is desirable, whether it should be by hydrostatic testing or some other means of evaluation. Comments should cover both of these points.

Thus, while the proposed regulation follows industry practices and codes in many areas, this does not mean that they will be followed in the future. As accident reports are received, as accidents are investigated, and as operating experience is gained, problems will be identified and regulatory changes will be made to solve the problems.

Cost/benefit determination. Every safety regulation has a cost factor, either a direct purchase-and-operation cost or an indirect cost resulting from operating at less than maximum efficiency. Every safety regulation (if it is justified) has a benefit factor, the increase in safety to the public. Although the cost of complying with a regulation is initially borne by the pipeline carrier, the ultimate cost is paid by the public in the higher cost of the delivered product. Thus, from the point of view of the regulatory agency, the cost/benefit determination is whether the safety benefit to the public justifies the cost to the public (recognizing that the two "publics" are never precisely the same).

Comments on each of the proposals in this notice should include a cost/benefit analysis. For example, look at the proposal to limit operating pressure to a level, including surge pressure, that will result in a stress not exceeding 72 percent of the specified minimum yield strength (proposed § 180.406). Present industry practice is to operate up to the 72 percent limit and to allow a 10 percent increase for surge pressure. Would the safety benefit to the public of the lower operating pressure justify the increased cost of the product resulting from the reduced productivity of the pipeline? What accidents have occurred while surge pressure was producing a stress greater than 72 percent of specified minimum yield strength? Did these accidents result from the surge pressure? Or from some external cause? Based on experience, what is the probability of surge pressure, which produces a stress higher than 72 percent of specified minimum yield strength, causing future accidents? What is the probability of harm to the public as a result of these accidents? How much would this proposal cost the national economy? What would be the cost/benefit of limiting surge pressure to 5 percent over operating pressure?

Subpart A—General and Subpart B—Accident Reporting. As indicated above, these subparts are for the most part as previously adopted. Subpart A contains new proposed definitions for Administrator, carrier, component, hazardous material, internal design pressure, line section, maximum operating pressure, offshore and surge pressure.

The proposed definition of "hazardous material" would replace the present definition of "dangerous goods". This proposed change is consistent with the recent proposal by the Hazardous Materials Regulations Board to adopt a definition of "hazardous material" in section 171.8 that would apply to 49 CFR Parts 171-190 (HM Docket No. 3, Notice No. 68-2 issued February 16, 1968, 33 F.R. 3382). Final action on the definition proposed in this notice will be consistent with the final action taken by the Hazardous Materials Regulations Board as a result of Notice No. 68-2.

Subpart C—Design Requirements. The proposed design requirements would apply to all new construction and to any replacement, relocation, or other change of existing pipeline facilities constructed with steel pipe.

As indicated previously, the proposed design requirements are set forth as performance requirements rather than as detailed specifications. Though stated differently, the minimum performance level set by the proposed design requirements is as high or higher than the present recommended industry standards as set forth in the various industry codes. One of the main differences between the proposed design requirements and present industry practice relates to relationship of maximum operating pressure to a 72 percent stress level. This item is discussed elsewhere in this preamble.

Subpart D—Construction. The proposed construction requirements would apply to all new construction, and to relocation, replacement, or any other alterations of existing systems constructed with steel pipe.

Pipeline location. Proposed § 180.210 would prohibit the construction of any pipeline within 50 feet of any private dwelling or any industrial building, or place of public assembly, unless the pipe is buried at least 24 inches deeper than would otherwise be required. Is there need for additional protection in populated areas? If so, are there alternative means of providing the necessary additional protection, such as concrete slabs or casing? Would operation at a lower stress level in populated areas be a feasible alternative? What is the experience in those localities that have required reduced operating pressure in populated areas? What are the results of studies of this subject?

Nondestructive testing of girth welds. Under proposed § 180.234(d), each girth weld made during construction would have to be nondestructively tested over its entire circumference. What are the risks inherent in not testing each girth weld? Is it within the public interest to take risks in this area of construction? What are the alternatives to the 100 percent test requirement?

Location of valves. Proposed § 180.260 requires the installation of valves at specific locations along the right-of-way, such as at each lateral take-off from a trunk line. This proposal would provide a means for limiting the escape of the commodity in the event of line failure. Is each of the specific proposed valve requirements reasonable? Are there other locations where a valve should be required? Are additional safeguards needed wherever a pipeline transverses a populated area or a watershed that provides water for human consumption?

Subpart E—Hydrostatic Testing. This proposed subpart would require the hydrostatic testing of each newly installed pipeline system, and of each replacement or relocation of existing pipe constructed with steel pipe. The carrier would be required to test the system or the appropriate portion thereof for at least 24 hours at a test pressure of at least 140 percent of the maximum operating pressure used by the operator. Under proposed § 180.406, the operator could not choose a maximum operating pressure that would produce a stress greater than 72 percent of the specified minimum yield strength of 72 percent of the lowest known yield strength of any pipe in the line, if specified minimum yield strength is not known. In addition, by virtue of the formula in proposed § 180.106 the internal design pressure could not produce a stress greater than 72 percent of the yield strength. Thus, the test pressure need not exceed the specified minimum yield strength or known yield strength of the pipe, as applicable. The test pressure could be less than 72 percent of the yield strength of the pipe (specified minimum or other), if the carrier should choose a lower maximum operation pressure.

Thus, as proposed, the hydrostatic test requirement would relate to the pressure at which the carrier proposed to operate, rather than to a fixed figure such as the internal design pressure or the specified minimum yield strength. Is this the proper method for establishing the required test pressure? If so, is 140 percent of maximum operating pressure reasonable? What are the practical alternatives?

Subpart F—Operation and Maintenance. This proposed subpart would prescribe minimum requirements for operating and maintaining pipeline systems constructed with steel pipe.

Maximum operating pressure. As indicated above, maximum operating pressure is a pressure chosen by the carrier for the safe operation of a pipeline system. Under proposed § 180.406, the maximum operating pressure could not exceed a pressure that produces a stress greater than 72 percent of the yield strength.

Until a hydrostatic test is performed, under Part 180, § 180.406 would permit operation at a pressure which produces a stress up to 72 percent of the yield strength, plus a 10 percent allowance for surge. After the hydrostatic test, there would be no allowance above 72 percent of the yield strength (specified minimum or other) for surge. Each pipeline carrier

would have to choose a maximum operating pressure low enough to allow for surges or other pressure variations from normal operation so that when these variations do occur, the pressure does not produce a stress greater than 72 percent of yield. In addition to cost/benefit comments on 72 percent with surge and 72 percent plus 10 percent allowance for surge, comments would be appropriate on 72 percent plus 5 percent for surge, or any other pressure limitation. Since control of surge pressure is crucial to compliance with this proposal, comments should discuss the reliability of presently available surge control devices.

Cathodic protection of existing pipelines. Proposed section 180.414 would require each carrier, within 3 years after the effective date of the adopted regulation, to cathodically protect each pipeline that is externally coated and that is not already cathodically protected. Within 5 years, each carrier would be required to replace and to cathodically protect corroded pipe. Each carrier would be required to conduct a survey within 1 year for any pipeline that is upgraded by an increase in pressure. Comments should cover the feasibility of these proposals and possible alternatives that would achieve the desired level of safety.

Subpart G—Qualification and Requalification of Pipeline. This proposed subpart prescribes testing requirements for the qualification and requalification of pipelines constructed with steel pipe. The requirements for requalification for pipelines that have previously successfully withstood a hydrostatic test of at least 110 percent of the internal design pressure are divided between pipelines constructed on or before December 31, 1958, and those constructed thereafter. For those pipelines constructed after December 31, 1958, a requalification test would be required within 15 years after the latest test. For pipelines constructed on or before December 31, 1958, the first requalification test would be required no later than 10 years after the latest test or before December 31, 1974, whichever is later. For pipelines that have never been hydrostatically tested to at least 110 percent of internal design pressure, the qualification test would be required no later than 5 years after the effective date of the adopted regulation. In each case a requalification test would be required at periodic intervals not to exceed 10 years. The procedures for each test would be the same as the hydrostatic test procedures proposed in Subpart E.

Since pipeline systems remain in service for many decades, there appears to be a need for periodic testing of the capability of the system to transport hazardous

materials safely. The proposed qualification and requalification tests are designed to fit this need. Are there other tests, or are there inspection procedures, that could achieve the same objectives at less cost and with less disruption on the use of a pipeline system? What is the likely effect of testing old pipe? Should there be different test procedures for welded pipe than for coupled pipe? If so, how and where should they differ? Is there any justification for lowering the required test pressure for old pipe? If so, what should be the test pressure?

Miscellaneous questions. It is realized that proposed Part 180 does not exhaust the potential requirements that could be applied to the transportation of hazardous materials by pipeline. As stated previously, these proposed requirements are minimum requirements. Many pipeline carriers may already be designing, constructing, and operating their pipelines to higher standards and it is expected that many will do so in the future. However, as further information (such as the accident reports filed under present Part 180) reveals the need for additional regulations, additional notices of proposed rule making will be issued.

The areas discussed below are not specifically covered in the regulations proposed at this time. However, comments would help in determining whether these are problems that require regulatory solution.

High voltage direct current. The transmission of electric bulk power over long distances by direct current will soon be a reality with the proposed construction of the Pacific Northwest-Southwest Intertie HVDC system in the States of Washington, Oregon, California, and Nevada. The transmission of electric bulk power by direct current can pose serious corrosion control problems since direct current, which causes external corrosion on buried metal structures, will be flowing as stray current between electrodes constructed for the system. Corrosion control requirements directed at the problem of HVDC may be necessary in the future. Comments should suggest possible methods of minimizing the corrosive effects of HVDC.

Construction of pipeline on bridges and through tunnels. The construction of pipelines on bridges and through tunnels could present safety hazards, but such construction could be the most desirable route from the safety as well as the economic viewpoint. For example, construction of a pipeline over a mountain or under water could result in a greater potential hazard than construction in a tunnel or on a bridge. In fact, construction of a bridge specifically designed to

carry both vehicular traffic and a pipeline might be the safest available route. What are the advantages and disadvantages of constructing pipelines over bridges and through tunnels? What precautions should be required?

Effective date of proposed regulations. No effective date is proposed for the various requirements contained in this notice of proposed rule making. Industry would need a reasonable period of time, probably no less than 120 days, to comply with most of the proposed requirements. Some requirements, particularly those relating to design and construction, may require longer lead time. It is probable that the proposed requirements will be made applicable on a phased basis. For example, the operation and maintenance subpart could apply 120 days, while the construction subpart could apply 180 days, after adoption. Comments should cover effective dates for the various requirements, indicating the problems that would arise from early compliance and the time required to solve those problems.

In consideration of the foregoing, it is proposed to amend Title 49, Chapter I of the Code of Federal Regulations by adding the following new Part 180.

This proposal is made under the authority of sections 831-835 of title 18, United States Code, and section 6 (e) (4) and (f) (3) (A) of the Department of Transportation Act (49 U.S.C. 1655 (e) (4) and (f) (3) (A)) and § 1.4(d) (6) of the regulations of the Office of the Secretary of Transportation.

Issued in Washington, D.C., on July 12, 1968.

A. SHEFFER LANG,
Administrator,
Federal Railroad Administrator.

PART 180—CARRIERS BY PIPELINE

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Subpart A—General

§ 180.1 Scope.

(a) Except as provided in paragraph (b) of this section, this part prescribes rules governing the transportation of hazardous materials by pipeline in interstate or foreign commerce.

(b) This part does not apply to—

- (1) Transportation by pipeline of water or natural or artificial gas;
- (2) Transportation through a pipeline by gravity; and
- (3) Pipelines that operate at a stress level of 20 percent or less of the specified minimum yield strength of the line pipe in the system.

§ 180.2 Definitions.

As used in this part—

“Administrator” means the Administrator of the Federal Railroad Administration of the Department of Transportation or any person to whom he has delegated authority in the matter concerned.

“Barrel” means a unit of measurement equal to 42 U.S. gallons at 60°.

“Carrier” means a pipeline carrier subject to sections 831–835 of title 18, United States Code.

“Component” means any part of a pipeline which may be subjected to pump pressure including but not limited to: Pipe, valves, elbows, tees, flanges, and closures.

“Hazardous material” means any material which, because of its potentially hazardous nature, requires control of those hazards during transportation to assure adequate safety and the transportation of which is covered by Parts 172 and 173 of this chapter and also includes petroleum.

“Internal design pressure” means the maximum pressure allowable, including surge pressure, as determined by analysis of the pipeline system during design.

“Line section” means a continuous run of pipe between any pressure pump station and the next booster station, between a pump station and terminal or working tankage, between a pump station and a block valve, or between block valves.

“Maximum operating pressure” means a pressure not more than the “internal design pressure” that is the maximum pressure established by the carrier for the safe operation of a pipeline under normal or steady state conditions.

“Offshore” means beyond the line of ordinary low water along that portion of the coast of the United States that is in direct contact with the open seas and beyond the line marking the seaward limit of inland waters.

“Petroleum” includes but is not limited to: Crude oil, natural gasoline, liquefied petroleum gas (LPG), and liquid petroleum products.

“Pipe” or “line pipe” means a tube, usually cylindrical, through which a commodity flows from one point to another.

“Pipeline system” or “pipeline” means all parts of a carrier’s physical facilities through which hazardous materials move including, but not limited to: Line pipe, valves, and other appurtenances connected to line pipe, pumping units, fabricated assemblies associated with pumping units, metering and delivery stations and fabricated assemblies therein, and carrier-controlled breakout tankage.

“Specified minimum yield strength” means the minimum yield strength, expressed in pounds per square inch, prescribed by the specification under which the material is purchased from the manufacturer.

“Stress level” means the level of tangential or hoop stress, usually expressed as a percentage of specified minimum yield strength.

“Surge pressure” means pressure produced by a change in velocity of the moving stream that results from shutting down a pump station or pumping unit, closure of a valve, or any other blockage of the moving stream.

§ 180.3 Matter incorporated by reference.

(a) There are incorporated by reference in this part all materials referred to in this part that are not set forth in full in this part. These materials are hereby made a part of this regulation. Materials subject to change are incorporated as they are in effect on the date of adoption of this part, unless the reference to them provides otherwise.

(b) All incorporated materials are available for inspection in the Docket Room, Room 304, 400 Sixth Street SW., Washington, D.C. In addition materials incorporated by reference are available as follows:

(1) American Petroleum Institute (API), 1271 Avenue of the Americas, New York, N.Y. 10020.

(2) American Society of Mechanical Engineers (ASME), United Engineering Center, 345 East 47th Street, New York, N.Y. 10017.

(3) American Welding Society (AWS), 33 West 39th Street, New York, N.Y. 10017.

(4) Manufacturers Standardization Society of the Valve and Fittings Industry, 420 Lexington Avenue, New York, N.Y. 10017.

(5) United States of America Standards Institute (USAS), 10 East 40th Street, New York, N.Y. 10016.

(c) The full title for the publications incorporated by reference in this part are as follows:

(1) American Petroleum Institute:

(i) API Standard 6D is titled "API Specification for Steel Gate, Plug, Ball, and Check Valves for Pipeline Service."

(ii) API Standard 1104 is titled "Standard for Welding Pipe Lines and Related Facilities".

(2) ASME Code is the American Society of Mechanical Engineers Boiler and Pressure Vessel Code.

(3) AWS A3.0 is titled "AWS Definitions—Welding and Cutting".

(4) MSS Standard Practice SP-48 is titled "Steel Butt-Welding Fittings (26 inch and larger)".

(5) United States of America Standards Institute:

(i) USAS B16.9 is titled "Wrought Steel Butt-Welding Fittings".

(ii) USAS B31.4 is titled "Liquid Petroleum Transportation Piping Systems."

§ 180.4 Acceptable petroleum commodities for transportation by pipeline.

A carrier may transport by pipeline any petroleum that will not damage the pipeline so as to create an undue hazard to persons or property.

§ 180.6 Transportation of hazardous material other than petroleum.

(a) Except for petroleum, no carrier may transport any hazardous material by pipeline, unless the carrier notifies the Administrator, in writing, with the information listed in paragraph (b) of this section, at least 90 days before the date the transportation is to begin. If the Administrator determines that the transportation of the hazardous material by pipeline in the manner proposed would be unduly hazardous, he will, before expiration of the 90 days, order the carrier, in writing, not to transport the hazardous material until further notice. As soon as practicable after issuance of such an order, the Administrator will initiate appropriate action to determine whether and in what manner the hazardous material may be transported by pipeline without undue hazard.

(b) The notice submitted to the Administrator by the carrier must state the chemical name, common name, hazard classification determined in accordance with Part 173 of this chapter, properties, and characteristics of the hazardous material to be transported. It must also include design specifications, including maximum operating pressures, for the pipeline through which the hazardous material is to be transported.

§ 180.8 Transportation of hazardous material in pipelines constructed with other than steel pipe.

After effective date of amendment no carrier may transport any hazardous material through a pipe that is constructed with material other than steel unless the carrier has notified the Administrator, in writing, indicating the

commodity to be transported and the material used in construction of the pipeline. If the Administrator determines that the transportation of the hazardous material in the manner proposed would be unduly hazardous he will order the carrier, in writing, not to transport the hazardous material in the proposed manner until further notice.

§ 180.10 Responsibility of carrier for compliance with this part.

A carrier may make arrangements with another person for the performance of any action required by this part. However, the carrier is not thereby relieved from the responsibility for compliance with any requirement of this part.

Subpart B—Accident Reporting

§ 180.25 Scope.

This subpart prescribes rules governing the reporting of any failure in a pipeline system subject to this part, in which there is a liquid or vapor release of the commodity transported resulting in any of the following:

(a) Explosion or fire not intentionally set by the carrier.

(b) Loss of 50 or more barrels of liquid.

(c) Escape to the atmosphere of more than 5 barrels per day of liquified petroleum gas or other commodity which vaporizes upon release to the atmosphere.

(d) Death of any person.

(e) Bodily harm to any person resulting in one or more of the following:

(1) Loss of consciousness.

(2) Necessity to carry the person from the scene.

(3) Necessity for medical treatment.

(4) Disability which prevents the discharge of normal duties or the pursuit of normal activities beyond the day of the accident.

(f) Property damage of at least \$1,000 to other than the carrier's facilities, based upon actual cost or reliable estimates.

§ 180.26 Immediate notice of fatal accidents.

Whenever the death of any person as the result of an accident required to be reported under this subpart occurs before the carrier has filed a report under § 180.30, the carrier shall immediately, after it becomes aware of the death, notify the Administrator, by telegraph or telephone, or at least the following:

(a) Name and address of the carrier.

(b) Date, time, and exact location of the accident.

(c) The number of persons killed and the number injured.

(d) A brief description of the accident.

§ 180.30 Accident reporting.

Each carrier that experiences an accident in the United States required to be reported under this subpart, shall, as soon as practicable but not later than 15 days after discovery of the accident, prepare and file an accident report, on DOT Form 7000-1 or a facsimile, with the Administrator, Federal Railroad Administration, Department of Transportation,

Washington, D.C. 20591. The carrier shall file two copies of each report and shall retain one copy at its principal place of business.

§ 180.31 Instructions for preparing DOT Form 7000-1.

(a) Each carrier shall prepare each report of an accident on DOT Form 7000-1 or a facsimile, in accordance with the following instructions:

(1) *General.* Each applicable item must be marked or filled in as fully and as accurately as information accessible to the carrier at the time of filing the report will permit.

(2) *Part A.* Enter name as it is filed with the Interstate Commerce Commission. If the carrier's name is not filed with the Commission, enter the complete corporate name of the carrier. Enter the address of the carrier's principal place of business including ZIP code.

(3) *Part B, Item 1.* Enter the date the accident occurred or was discovered. If the accident was not discovered on the date it occurred, state this fact on the back of the form.

(4) *Part B, Item 2.* Enter the exact time in hours and minutes (i.e., 10:15) if known or a time range (i.e., 10-11) if exact time is not known. If the accident was not discovered on the date it occurred, enter the time it was discovered and state this fact on the back of the form as in Part B, Item 1.

(5) *Part B, Item 3.* Enter all three names, State, county, city, or town, in or near which accident occurred.

(6) *Part B, Item 4.* Mark the appropriate box. If "other" is marked, state clearly on form what part of the pipeline system.

(7) *Part B, Item 5.* If the accident occurred in an uninhabited area, such as woods, cultivated field, swamp, etc., so state clearly on the form under Item 5. If not, attach a sketch to the form showing the part of the pipeline system where the accident occurred, and the location of the accident as related to significant landmarks. Each item shown on the sketch must be clearly and distinctly marked to identify it. Approximate distances from accident location to all landmarks shown on the sketch must be indicated.

(8) *Part C.* Mark the appropriate box or boxes. If applicable, mark more than one box. If "other" is marked, state clearly on form the exact origin of the liquid or vapor release.

(9) *Part D.* Mark the appropriate box. If "other" is marked, clearly state the cause of the accident.

(10) *Part E.* Indicate a number under each heading including "0" if none. Report deaths, even if previously reported in accordance with § 180.26.

(11) *Part F, Items 1 and 2.* Report only material in the pipeline system that was actually damaged such as pipe, valves, or fittings. Do not include cost of commodity which was lost due to the accident or fittings used during repair which became permanently attached to the system. The dollar value of damage should be based on replacement at present day costs.

(12) *Part F, Items 3 and 4.* This is damage to property other than that of the carrier. Dollar value must be actual or the best estimate available.

(13) *Part G, Item 1.* State the commonly used name of the commodity, such as fuel oil, regular gasoline, liquified petroleum gas. If the commodity name is one not commonly used, state the name here and give a brief description of it under "Account of Accident by Responsible Official of Carrier".

(14) *Part G, Item 3.* State the year facility was installed or the best estimate possible. Pipe is excluded as the year of installation is required in Item 4 of Part H.

(15) *Part H.* Mark appropriate boxes and state information required in all items of this part only if the accident occurred in line pipe. If the accident occurred in any other part of the pipeline system, omit this part.

(16) *Part I.* Mark appropriate boxes and state information required in all items of this part if the accident was caused by corrosion in any component of the pipeline system. In Item 4, state the length of time between the type of tests, such as pipe-to-soil potential, stated in Item 5.

(17) *Part J.* Complete all three items only if the accident was caused by equipment rupturing the pipeline. In Item 2, all the information stated on the closest line marker must be shown.

(b) In addition to the requirements of paragraph (a) of this section, in the space provided after Part J, the carrier shall enter an account of the accident containing the most reliable information to which the carrier has access at the time of reporting, sufficiently detailed and complete to convey an understanding of the accident. This account may be continued on an extra sheet of paper if more space is needed.

(c) At the bottom of the back of DOT Form 7000-1, the carrier shall state the name and title of the pipeline official responsible for compiling and filing the report along with the telephone number at which this official can be reached, and the date the report was completed.

§ 180.32 Changes in or additions to accident report.

Whenever a carrier receives any changes in the information reported or additions to the original report on DOT Form 7000-1 it shall immediately file a supplemental report with the Administrator.

§ 180.33 Carrier assistance in investigation.

If the Department of Transportation investigates an accident, the carrier involved shall make available to the representative of the Department all records and information that in any way pertain to the accident, and shall afford all reasonable assistance in the investigation of the accident.

§ 180.34 Supplies of accident report DOT Form 7000-1.

Each carrier shall maintain an adequate supply of forms that are a facsimile

of DOT Form 7000-1 to enable it to promptly report accidents. The Department will, upon request, furnish specimen copies of the form.

Subpart C—Design Requirements

§ 180.100 Scope.

This subpart prescribes minimum design requirements for new pipeline systems constructed with steel pipe and for relocating, replacing, or other change to existing systems constructed with steel pipe.

§ 180.102 Ambient temperature.

Each carrier shall choose material for components for the temperature environment in which the components will be used so that the pipeline will maintain its structural integrity.

§ 180.104 Variations in pressure.

If, within a pipeline system, two or more components are to be connected at a place where one will operate at a higher pressure than another, the carrier shall design the system so that any component that operates at the lower pressure will not be overstressed.

§ 180.106 Internal pressure design: Minimum wall thickness.

(a) Each carrier shall, in designing each of its pipeline systems, determine the minimum wall thickness for internal pressure design in accordance with the following formula:

$$t = \frac{PD}{2SE} \text{ where—}$$

- D=nominal outside diameter in inches;
- E=longitudinal joint factor determined under paragraph (b) of this section;
- P=internal design pressure, p.s.i.g.;
- S=maximum allowable stress value, p.s.i., determined under paragraph (c) of this section; and
- t=wall thickness in inches.

(b) The longitudinal joint factor "E" used in paragraph (a) of this section is determined by the following table:

Specification	Pipe type	E
ASTM A 53	Seamless	1.00
	Electric resistance-welded	1.00
	Furnace lap-welded	0.80
	Furnace butt-welded	0.80
ASTM A 106	Seamless	1.00
ASTM A 134	Electric fusion (arc) welded single or double pass	0.80
ASTM A 135	Electric resistance-welded	1.00
ASTM A 139	Electric fusion welded single or double pass	0.80
ASTM A 148	Electric fusion welded	1.00
ASTM A 211	Spiral welded pipe	0.80
ASTM A 381	Electric fusion welded, double submerged arc welded	1.00
API 5L	Seamless	1.00
	Electric resistance-welded	1.00
	Electric flash welded	1.00
	Submerged arc welded	1.00
	Furnace lap welded	0.80
API 5LX	Seamless	1.00
	Electric resistance welded	1.00
	Electric flash welded	1.00
	Submerged arc welded	1.00
API 5LS	Electric resistance welded	1.00
	Submerged arc welded	1.00

If a carrier proposes to use pipe for which no longitudinal joint factor is set forth in this paragraph, the carrier must first obtain the Administra-

tor's approval of the factor the carrier proposes to use.

(c) The maximum allowable stress value "S" in paragraph (a) of this section is 72 percent of the specified minimum yield strength or, if the specified minimum yield strength is unknown, 72 percent of the yield strength determined under § 180.114(a). However, for pipe that has been cold worked to meet the specified minimum yield strength and is later heated to at least 600° F. (excluding girth welds) the maximum allowable stress value is 54 percent of the specified minimum yield strength.

(d) The wall thickness (t) determined under this section is the minimum wall thickness. In determining the final wall thickness the carrier shall consider any external pressure and loads, as required by §§ 180.108 and 180.110.

§ 180.108 External pressure.

Each carrier shall, in designing each of its pipeline systems, provide for any external pressure that will be exerted on the pipe.

§ 180.110 External loads.

(a) Each carrier shall, in designing each of its pipeline systems, provide for anticipated external loads (e.g. earthquakes, vibration, thermal expansion and contraction). In providing for expansion and flexibility, the carrier shall design in accordance with section 419 of US. B31.4—1966.

(b) Each carrier shall provide support for its pipe and other components, so that the support does not cause excess localized stresses. Each carrier shall, in designing attachments to its pipe, compute the added stress to the wall of the pipe and compensate for that stress.

§ 180.112 New pipe.

Each carrier shall comply with the following whenever it is to install any new pipe in a pipeline system:

(a) The pipe must be made of steel of the carbon, low alloy-high strength, or alloy type that is able to withstand the internal pressures and external loads and pressures anticipated for the pipeline system.

(b) The pipe must be made in accordance with a written pipe specification that sets forth the chemical requirements for the pipe steel and mechanical tests for the pipe to provide for pipe suitable for the use intended.

(c) Each length of pipe with an outside diameter of at least four inches must be marked, setting forth the specification to which it was made, the specified minimum yield strength, and the pipe size. The marking must be applied in a manner that does not injure the pipe and that is visible until installation of the pipe. On mill-coated pipe, marking may be placed over the coating.

§ 180.114 Used pipe.

Each carrier shall comply with § 180.112 (a) and (b) and the following whenever it is to install any used pipe in a pipeline system:

(a) The pipe must be of a known specification and the joint efficiency must be determined under § 180.106(b). In addition, it must be of known specified minimum yield strength, or the yield strength must be determined by section 437.6.6 of USAS B31.4-1966.

(b) There must be no buckles, pits of a depth more than 5 percent of the nominal wall thickness, cracks, grooves, gouges, dents, or other visual surface defects that might reduce the strength of the pipe.

(c) Each girth weld must be non-destructively inspected in accordance with § 180.234.

§ 180.116 Valves.

Each carrier shall comply with the following when it is to install any valve in a pipeline system:

(a) The valve must be of a sound engineering design.

(b) Materials subject to the internal pressure of the pipeline system, including welded and flanged ends, must be compatible with the pipe or fittings to which the valve is attached.

(c) Each part of the valve that will be in contact with the commodity stream must be made of materials that are compatible with each commodity that it is anticipated will flow through the pipeline system.

(d) Each valve must be both hydrostatically shell tested and hydrostatically seat tested without leakage to at least the requirements set forth in section 5, API Standard 6D, 1964 Edition.

(e) Each valve must be equipped with a device that clearly indicates the opened, closed, and any other valve position.

(f) Each valve and each extension on a valve, must be marked with at least the following:

(1) Manufacturer's name or trade name.

(2) Maximum working pressure to which the valve may be subjected.

(3) Body material designation (the end connection material, if more than one type is used).

(4) The nominal valve size.

§ 180.118 Fittings—requirement for butt welding.

Each carrier shall comply with the following when it is to use any fittings (such as elbows, returns, tees, crosses, caps, reducers) in a pipeline system:

(a) The fitting must meet the marking, end preparation, and the bursting strength requirements of USAS B16.9-1964, or MSS Standard Practice SP 48, 1956 Edition, depending on pipe size.

(b) There must be no buckles, dents, cracks, gouges, or other defects in the fitting that might reduce the strength of the fitting.

(c) The fitting must be suitable for the intended service and be at least as strong as the pipe and other fittings in the pipeline system to which attached.

§ 180.120 Changes in direction: Provision for internal passage.

Each carrier shall, in designing each of its pipeline systems, design it so that

components that accomplish a change in direction within the pipeline system are of a radius that readily allows the passage of pipeline scrapers, spheres, and internal inspection equipment.

§ 180.122 Fabricated branch connections.

Each carrier shall, in designing each of its pipeline systems, ensure that the addition of any fabricated branch connections will not reduce the strength of the pipeline system.

§ 180.124 Closures.

Each carrier shall ensure that any closures to be installed in its pipeline system comply with the ASME Code, Section VIII for Unfired Pressure Vessels, 1965 Edition, and have pressure and temperature ratings at least equal to those of the pipe to which the closure is attached.

§ 180.126 Flange connection.

Each carrier shall ensure that each component of the flange connection is compatible with each other component and that the connection as a unit is suitable for the service in which it is to be used.

§ 180.128 Station piping.

Each carrier shall ensure that any pipe, to be installed in a station that is subject to system pressure, meets the applicable requirements of this part.

§ 180.130 Fabricated assemblies.

Each carrier shall ensure that each fabricated assembly to be installed in a pipeline system meets the applicable requirements of this part.

§ 180.132 Above ground tanks.

Each carrier shall, in designing any above ground tank, design it to withstand the internal pressures produced by the commodity to be stored therein and to withstand any anticipated external loads, consistent with accepted industry standards.

Subpart D—Construction

§ 180.200 Scope.

This subpart prescribes minimum requirements for constructing new pipeline systems with steel pipe, and relocating, replacing, or other change to existing systems constructed with steel pipe.

§ 180.202 Specifications: Compliance therewith and with design requirements.

(a) Each carrier shall, before beginning any pipeline construction have a written set of specifications that covers all phases of the proposed construction. The specifications must include provisions for design and construction consistent with the requirements of this part and must cover all phases of the work to be performed.

(b) Each carrier shall perform the construction work on each pipeline system covered by this part in accordance with the specifications required by paragraph (a) of this section and in

accordance with the design requirements of Subpart C of this part.

§ 180.204 Inspection—general.

Each carrier shall provide for inspection to ensure installation in accordance with the requirements of this subpart. No carrier may use any person to perform inspections unless that person has been trained and is qualified in the phase of construction he is to inspect.

§ 180.206 Material inspection.

No carrier may install any pipe or other component in its pipeline system unless it has been visually inspected immediately before installation to assure that it is not damaged in a manner that could impair its strength or reduce its serviceability.

§ 180.208 Welding of supports and braces.

No carrier may weld any support or brace directly to pipe that will be operated at a pressure of more than 100 p.s.i.g.

§ 180.210 Pipeline location.

(a) Each carrier shall select its pipeline right-of-way so as to avoid, as far as practicable, areas containing private dwellings, industrial buildings, and places of public assembly.

(b) No carrier may locate a pipeline within 50 feet of any private dwelling, or any industrial building or place of public assembly in which persons work, congregate, or assemble, unless it is to be laid at a depth to provide at least 24 inches additional cover to that prescribed in § 180.248.

§ 180.212 Bending of pipe.

Each carrier that makes any field bends, shall make them in accordance with the following:

(a) The bend must be accomplished by a cold bending method that produces a smooth uniform bend with a minimum radius in accordance with the following table:

Pipe size (OD) inches:	Minimum radius of bend in pipe diameters
12½ and smaller	18
14	21
16	24
18	27
20 and larger	30

(b) The pipe must be free from buckling, cracks, or any other mechanical damage and must conform after bending to the profile of the completed ditch.

(c) There must be no wrinkle bends or mitered bends (not including deflections up to 3° that are caused by misalignment).

(d) No girth weld may be placed inside the bending shoe.

(e) Pipe containing a weld seam must be bent so that the seam is located near the neutral axis.

§ 180.214 Welding: General: Record keeping.

(a) No carrier may weld any component except in compliance with this section and §§ 180.216 through 180.234. For

the purposes of the welding requirements in this subpart the welding term definitions in AWS A3.0-1961 apply.

(b) Before beginning any welding each carrier shall establish written welding procedures that it has tested to assure that when followed will produce sound, ductile welds that comply with at least the applicable requirements of this subpart. The carrier shall keep detailed records of the tests performed to demonstrate the adequacy of that procedure.

§ 180.216 Distance between welds.

No carrier may make any welds that are closer than—

(a) Two inches, in the case of adjacent fillet welds or a fillet weld and a butt weld;

(b) Twelve inches, between parallel butt welds in the case of pipe of 24 inches or more in diameter; or

(c) One half of the pipe diameter, but not less than four inches, between parallel butt welds in the case of pipe of less than 24 inches in diameter.

This section does not apply to manufactured welded fittings such as anchor flanges and reducers.

§ 180.218 Welding: Seam offset and seam location.

No carrier may weld pipe lengths unless the seams on adjacent pipe lengths are offset so that when installed in a ditch, the seam is located in the top half of the circumference.

§ 180.220 Welds: filler metal.

No carrier may use any filler metal unless it is at least equal in strength to the pieces being welded and will fuse the pieces together.

§ 180.222 Welders: Testing.

No carrier may use any welder who has not been tested and found to qualify under section 3, API Standard 1104, January 1968 Edition.

§ 180.224 Welding: Weather.

No carrier may perform any welding under weather conditions that would impair the quality of the completed weld.

§ 180.226 Welding: Arc burns.

(a) No pipeline carrier may—

(1) Leave an arc burn unrepaired; or

(2) Weld a ground to the pipe or fitting being welded.

(b) A carrier may repair an arc burn by completely removing the notch by grinding, if the grinding does not reduce the wall thickness by more than 5 percent of the specified minimum wall thickness. If a notch is not repairable by grinding, the carrier shall remove a cylinder of the pipe large enough to remove the notch.

§ 180.228 Welding inspection: Standards of acceptability.

Each carrier shall inspect the welding process to ensure compliance with the applicable requirements of this subpart. The carrier shall supplement visual inspection with destructive and nondestructive testing. The acceptability of visual inspection and of nondestructive testing is determined according to the

standards in section 6, API Standard 1104, January 1968 edition.

§ 180.230 Welds: Repair of defects.

No carrier may repair a weld that is found unacceptable under § 180.228 unless—

(a) There are no cracks in the weld;

(b) The segment of the weld to be repaired was not previously repaired; and

(c) The weld is inspected after repair to assure its acceptability.

§ 180.232 Welds: Removal of defects.

A carrier shall remove a cylinder of the pipe containing the weld, and rebevel the ends whenever—

(a) The weld contains one or more cracks;

(b) The weld is not acceptable under § 180.228 and is not repaired; or

(c) The weld was repaired and the repair did not meet the requirements of § 180.228.

§ 180.234 Welds: Nondestructive testing; retention of records.

(a) A carrier may test a weld nondestructively by any process that will clearly indicate any defects in the weld.

(b) The carrier shall perform any nondestructive testing of welds—

(1) In accordance with a written set of procedures it has established for nondestructive testing; and

(2) With personnel that have been trained in the established procedures and in the use of the equipment employed in the testing.

(c) The carrier shall establish procedures that will ensure the proper interpretation of each weld inspection to assure compliance with § 180.228.

(d) During construction of a pipeline the carrier shall nondestructively test each girth weld over its entire circumference.

(e) Each carrier shall retain at its principal place of business for at least 3 years after the line is placed in operation each record relating to the nondestructive testing of welds, including the developed film if radiography is used with, so far as practicable, the location of each weld.

§ 180.236 External corrosion protection: General.

Each carrier shall provide for the protection of each component in the pipeline system against external corrosion for the life of the pipeline system.

§ 180.238 External coating.

No carrier may bury any pipeline system component unless that component has an external protective coating that—

(a) Is designed to mitigate corrosion on the buried component;

(b) Is bonded tightly to the metal surface;

(c) Is sufficiently ductile to resist cracking;

(d) Has enough strength to resist damage due to handling and soil stress; and

(e) Supports any supplemental cathodic protection.

If a barrier type is used it must be waterproof and provide high electrical resistance.

§ 180.240 Protection of coating.

The carrier shall inspect all coated pipe immediately before the installation and shall repair any damage discovered.

§ 180.242 Cathodic protection system.

(a) Each carrier shall have a cathodic protection system for all buried facilities to prevent corrosion deterioration that might result in structural failure. It shall also have a test procedure to determine whether cathodic protection has been achieved.

(b) The carrier shall install a cathodic protection system not later than 1 year after completing the construction.

§ 180.244 Test leads.

(a) Except for offshore pipelines, each carrier shall install electrical test leads used for corrosion control or electrolysis testing at intervals frequent enough to ensure obtaining electrical measurements that will indicate the adequacy of its cathodic protection.

(b) The carrier shall install the test leads so that—

(1) Enough looping or slack is provided so that the test lead will not be unduly stressed or broken during backfilling;

(2) Each lead is attached to the pipe so as to prevent stress concentration on the pipe; and

(3) Each lead installed in a conduit is suitably insulated from the conduit.

§ 180.246 Installation of pipe in a ditch.

The carrier shall ensure that all pipe installed in a ditch is installed in a manner that minimizes the introduction of stresses that would reduce the mechanical strength of the pipe.

§ 180.248 Cover over buried pipeline.

(a) Unless specifically exempted in this subpart, the carrier shall bury all pipe so that it is below the level of cultivation for the area through which the pipe traverses. Except as provided in paragraph (b) of this section, the carrier shall install the pipe so that the cover between the top of the pipe and the ground level, road bed, or river bottom, as applicable, is at least the depth contained in the following table for the applicable location:

Location	Cover (Inches)	
	For normal excavation	For rock excavation ¹
Industrial, commercial, and residential areas.....	36	
Crossing of bodies of water with a width of at least 100 feet from high water mark to high water mark.....	48	36
Drainage ditch at public roads and railroad crossings.....	36	36
Any other area.....	30	18

¹ Rock excavation is excavation that requires blasting.

(b) If it is impracticable to comply with the minimum cover requirement of

paragraph (a) of this section, the carrier may provide less cover if enough additional protection, such as a concrete slab or casing is installed to provide equivalent protection.

§ 180.250 Clearance between pipe and underground structures.

No carrier may install any pipe underground unless there is at least 12 inches between the outside of the pipe and the extremity of any other underground structure, except that for drainage tile the minimum clearance may be less than 12 inches but not less than 2 inches.

§ 180.252 Backfilling.

The carrier shall perform backfilling in a manner that protects any pipe coating and provides firm support for the pipe.

§ 180.254 Above ground components.

(a) A carrier may install any component above ground in the following situations, if it complies with the applicable requirements of this part:

- (1) Overhead water crossing.
- (2) Short span over a gully.
- (3) Scraper trap or block valve.
- (4) In any area under the direct control of the carrier.
- (5) In any area inaccessible to the public because of the terrain.

(b) The carrier shall construct each component covered by this section so that it is protected from the forces that would be exerted by the anticipated loads.

§ 180.256 Crossing of railroads and highways.

Each carrier shall install pipe that crosses under a railroad or a public road as close as practicable to 90° to the centerline of the railroad or public road but not less than 30° to the centerline. The carrier shall construct each railroad or highway crossing so that the pipe is protected from the dynamic forces that would be exerted by the anticipated maximum allowable gross traffic loads.

§ 180.258 Valves: General.

The carrier shall ensure that each valve installed in a pipeline system is installed in a location that is accessible to its authorized employees and that is protected from damage or tampering.

§ 180.260 Valves: Location.

The carrier shall install a valve at each of the following locations:

- (a) On the suction end and on the discharge end of a pump station in a manner that permits isolation of the pump station.
- (b) On each line entering or leaving a tank farm in a manner that permits isolation of the tank farm from other facilities.
- (c) On each main line at locations along the pipeline system appropriate for the terrain in open country, and at locations that will minimize damage from accidental product discharge near cities and other populated areas, but in no case further apart than 10 miles.
- (d) On each lateral take-off from a trunk line in a manner that permits

strutting off the lateral without interrupting the flow in the trunk line.

(e) On each side of each water crossing at least 100 feet wide from high water mark to high water mark.

(f) On each side of a reservoir holding water for human consumption.

§ 180.262 Pumping equipment.

(a) The carrier shall provide for adequate ventilation in the pump station to prevent the accumulation of explosive vapors. The carrier shall install warning devices that will warn of the presence of explosive vapors in the pumping station.

(b) The carrier shall provide for the following in each pump station:

(1) Safety devices that prevent overpressuring of pumping equipment, including auxiliary equipment within the pumping station.

(2) A device for the emergency shutdown of each pumping station.

(3) If required to actuate safety devices, an auxiliary power supply.

(c) No carrier may use a pumping station for other than testing until it has tested each safety device under conditions approximating actual operations and found that the device functions properly.

(d) No carrier may install any pumping equipment—

(1) On any property that is not under its exclusive control; and

(2) Closer than 50 feet from the property line.

(e) The carrier shall install adequate fire protection at each pump station. If the fire protection system installed requires the use of pumps, the carrier shall provide motive power for those pumps that is separate from that provided for the station power.

§ 180.264 Above ground storage and working tankage.

(a) The carrier shall provide a means for containing the commodity in the event of spillage or tank failure.

(b) The carrier shall provide adequate protection for tankage areas to protect against unauthorized entry.

(c) The carrier shall provide normal and emergency relief venting for each tank.

§ 180.266 Construction records.

The carrier shall maintain at its principal place of business for the life of each facility a complete record showing—

(a) The number of girth welds, including the number rejected and the disposition of each rejected weld;

(b) The amount, location, and cover of each size of pipe installed;

(c) The location of each crossing of another pipeline;

(d) The location of each buried utility crossing;

(e) The location of each overhead crossing; and

(f) The location of each valve, weighted pipe, corrosion test station, or other item connected to the pipe.

Subpart E—Hydrostatic Testing

§ 180.300 Scope.

This subpart prescribes minimum hydrostatic test requirements for new and existing pipeline systems constructed with steel pipe.

§ 180.302 General requirements.

(a) No carrier may operate a new pipeline system, or return to operation a pipeline system that has been relocated, qualified, or requalified, or in which pipe has been replaced, until the new pipeline system or that part that has been relocated, replaced, qualified, or requalified has been hydrostatically tested in accordance with this subpart with no leakage found.

(b) In conducting the hydrostatic test the carrier shall—

(1) Maintain, for at least 24 hours, a test pressure throughout that part of the system being tested that is at least 140 percent of the maximum operating pressure for that part of the system being tested; and

(2) After 24 hours relieve the test pressure and then repressure to the test pressure, allowing the pressure to stabilize, to check for cyclic failure.

§ 180.304 Testing of components.

In conducting the hydrostatic test required by § 180.302 the carrier shall test all pipe and fittings attached thereto including components in the system that were factory assembled if they are a part of new construction or a major replacement. However, if a component is the only item being replaced or added to the pipeline system, a hydrostatic test after installation is not required if the manufacturer certifies that the component was hydrostatically tested at the factory to at least the pressure required by § 180.302(b).

§ 180.306 Test medium.

(a) Except as provided in paragraph (b) of this section, the carrier shall use as the test medium water that is sufficiently alkaline that it will not damage the steel surfaces and that is free of sedimentary material.

(b) If the entire pipeline section being tested is located outside of any city or other populated area and if there are no persons (other than those conducting the test) within 1,000 feet of the test section, the carrier may use liquid petroleum of a type that will not vaporize if released to the atmosphere.

§ 180.308 Testing of tie-in.

The carrier shall test all pipe associated with tie-ins as required by § 180.302 either with the section to be tied-in or separately.

§ 180.310 Records.

(a) The carrier shall make a record of each hydrostatic test performed under this subpart (including the reasons for any failure during a test) and shall keep that record, at his principal place of business, for the useful life of the facility tested.

(b) The carrier shall include in the record, recording gauge charts, dead weight tester data, and a profile of the pipeline on which the elevation and test sites over the entire length of the pipeline are indicated. Each chart must include at least—

(1) The carrier's name, the name of the carrier's employee responsible for making the test, and the name of the test company used, if any;

(2) The date and time of the test;

(3) The average test pressure;

(4) The test medium;

(5) A description of the facility tested; and

(6) An explanation of any discontinuities in the pressure on any chart.

Subpart F—Operation and Maintenance

§ 180.400 Scope.

This subpart prescribes minimum requirements for operating and maintaining pipeline systems constructed with steel pipe.

§ 180.402 General requirements.

(a) Each carrier shall establish and maintain current written procedures to ensure the safe operation and maintenance of its pipeline systems in accordance with this part, including the procedures to be followed during normal and abnormal operations and during emergencies.

(b) No carrier may operate or maintain its pipeline systems at a level of safety lower than that required by this subpart and the procedures it is required to establish under paragraph (a) of this section.

(c) Whenever a carrier discovers any condition that could adversely affect the safe operation of its pipeline system it shall correct it within a reasonable time. However, if the condition is of such a nature that it presents a hazard to persons or property, the carrier may not operate the affected part of the system until it has corrected the unsafe condition.

(d) No carrier may operate any pipeline system constructed after [effective date of this part] unless it was designed and constructed as required by this part.

§ 180.404 Maps and records.

(a) Each carrier shall maintain current maps of its pipeline systems that must include at least the following information:

(1) Location and identification of all major facilities.

(2) All public roads, railroads, river crossings, and crossings with buried or overhead foreign facilities.

(3) The maximum operating pressure of each pipeline.

(4) The diameter, grade, type, and wall thickness of all pipe.

(b) Each carrier shall maintain daily operating records that indicate at least the discharge pressures at each pump station and any unusual operations of a facility. The carrier shall retain these records at its principal place of business for at least 3 years.

(c) The carrier shall maintain records that include at least the following:

(1) The date, location, and description of each repair made to its pipeline systems.

(2) A record of each inspection or test required by this part.

The carrier shall retain each record for the useful life of that part of the pipeline system to which it relates.

§ 180.406 Limit on operating pressure.

(a) No carrier may operate any pipeline, that is hydrostatically tested after [effective date of this amendment], at a pressure that is more than the maximum operating pressure, which was used as the base for the hydrostatic test. However, the operating pressure may not exceed a pressure that produces a stress greater than 72 percent of the specified minimum yield strength or 72 percent of the lowest known yield strength of any pipe in the line, if specified minimum yield strength is not known.

(b) No carrier may operate a pipeline, that has not been hydrostatically tested under this part, at a pressure that produces a stress greater than 72 percent of the specified minimum yield strength of the material used or 72 percent of the lowest known yield strength of any pipe in the line, if specified minimum yield strength is not known, plus a 10 percent allowance for surge pressure or other pressure variations from normal operations. The carrier shall provide adequate controls and protective equipment so that the pressure rise due to surge pressure and other variations from normal operations at any point in the pipeline system does not exceed 10 percent.

§ 180.408 Communications.

The carrier shall have a communication system that ensures the transmission of information required for the safe operation of the pipeline system.

§ 180.410 Line markers.

(a) After [1 year after the effective date of this amendment] the carrier shall have line markers over each buried line in accordance with the following:

(1) Markers must be located at each public road crossing, at each railroad crossing, and in sufficient number along the remainder of each buried line so that its location is accurately known.

(2) The marker must state at least the following: "Warning" "Petroleum (or the name of the product transported) Pipeline" (in lettering at least 1 inch high with an approximate stroke of ¼ inch on a background of sharply contrasting color), the name of the carrier and a telephone number where the carrier can at all times be reached. In addition, markers at navigable river crossings must contain the words "Do Not Anchor" with lettering not less than 12 inches high with an approximate stroke of 1 inch on a background of sharply contrasting color.

(b) The carrier shall provide line marking at locations where the line is above ground in areas that are accessible to the public.

§ 180.412 Inspection of rights-of-way and of crossings under navigable waters.

(a) At least once during each 2-week period the carrier shall inspect each line in its pipeline system to observe at least the surface conditions on or adjacent to the pipeline right-of-way.

(b) Except for offshore pipelines, at least once during each 5-year period the carrier shall inspect each crossing of 100 feet or more under a navigable waterway to determine that no part of the pipe is exposed.

§ 180.414 Cathodic protection of existing pipelines.

(a) Except as provided in paragraph (c) of this section, each pipeline in existence on [the effective date of this amendment] with an external surface coating material that is not cathodically protected shall be so protected within 3 years after that date.

(b) Except as provided in paragraph (c) of this section, bare pipelines in existence on [the effective date of this amendment] shall be electrically surveyed within a 5-year period after that date to reveal areas in which active corrosion is taking place. However, the carrier shall survey those sections of pipeline that are upgraded by an increase in pressure within 1 year after that date if the pipe is found to be pitted so that original wall thickness is reduced by 10 percent or more, the carrier shall replace the pipe with coated pipe that meets the requirements of this part. In any areas where there is corrosion pitting, the carrier shall provide cathodic protection.

(c) Tank farms and buried pumping station piping existing on [the effective date of this amendment] with or without an external surface coating material shall be cathodically protected within 3 years after that date.

§ 180.416 External corrosion control: Inspections and surveys; Maintenance of test stations; Protection of exposed pipe.

(a) At least once during each 12-month period each carrier shall inspect each underground facility in its pipeline system that is under cathodic protection to determine whether the protection complies with § 180.242.

(b) The carrier shall maintain the test leads required by § 180.244 in such a condition that electrical measurements can be obtained to ensure adequate protection.

(c) At least once during each 2-month period, each carrier shall inspect each of its cathodic protection rectifiers.

(d) At least once during each 12-month period each carrier shall electrically inspect pipe in its pipeline system that is not coated, or that is not cathodically protected, and shall study test records for that segment, to determine if additional protection is needed.

(e) Whenever any buried pipe is exposed for any reason, the carrier shall examine the pipe for evidence of external corrosion. If the carrier finds that there is active corrosion, that the surface of

the pipe is generally pitted, or that corrosion has caused a leak, it shall investigate further to determine the extent of the corrosion.

(f) Each carrier shall clean and coat, with material suitable for the prevention of atmospheric corrosion, and shall thereafter maintain, each component in its pipeline system that is exposed to the atmosphere.

(g) If pipe is found to be pitted so that the original wall thickness is reduced by 10 percent or more, the carrier shall replace the length of pipe so corroded, with coated pipe that meets the requirements of this part.

§ 180.418 Internal corrosion control.

(a) No carrier may transport any commodity through its pipeline systems if that commodity would corrode the pipe or other components of the system, unless it has investigated the corrosive effect of the commodity on the system and has taken adequate steps to control corrosion.

(b) If a carrier uses corrosion inhibitors to control internal corrosion, it shall use inhibitors in sufficient quantity to protect the entire part of the system that the inhibitors are designed to protect and shall use coupons or other monitoring equipment. If inhibitors are used, the carrier shall, at least once during each 6-month period, examine coupons or other types of monitoring equipment to determine inhibitor effectiveness.

(c) Whenever any pipe is removed from the pipeline for any reason, the carrier shall inspect the internal surface for evidence of corrosion. If the original wall thickness of the pipe has been reduced by 10 percent or more, the carrier shall investigate adjacent pipe to determine the extent of the excess corrosion and shall replace the corroded pipe with pipe that meets the requirements of this part.

§ 180.420 Valve maintenance.

(a) Each carrier shall maintain each valve, necessary for the safe operation of its pipeline systems, in good working order at all times.

(b) At least once during each 6-month period each carrier shall inspect each main line valve to determine that it is functioning properly.

(c) Each carrier shall protect each valve from unauthorized operation and from vandalism.

§ 180.422 Pipeline repairs.

(a) Each carrier shall, in making repairs to its pipeline systems, ensure that the repairs are made in a safe manner, and are made so as to prevent damage to persons or property.

(b) No carrier may use any pipe, valve, or fitting, for replacement in repairing pipeline facilities, that is not designed and constructed as required by this part.

§ 180.424 Pipe movement.

No carrier may perform any work on the pipeline that necessitates moving the pipe, until the line section involved is isolated to eliminate the flow of commodity. The carrier shall not move any

pipeline containing commodities that vaporize upon release to the atmosphere.

§ 180.426 Scraper and sphere facilities.

No carrier may use a launcher or receiver that is not equipped with a relief device capable of safely relieving pressure in the barrel before insertion or removal of scrapers or spheres. The carrier shall use a suitable device to indicate that pressure has been relieved in the barrel or shall provide a means to prevent insertion or removal of scrapers or spheres if pressure has not been relieved in the barrel.

§ 180.428 Overpressure safety devices.

(a) At least once during each 6-month period each carrier shall inspect and test each pressure limiting device, relief valve, pressure regulator, or other item of pressure control equipment to determine that it is functioning properly, is in good mechanical condition, and is adequate from the standpoint of capacity and reliability of operation for the service in which it is used.

§ 180.430 Firefighting equipment.

Each carrier shall maintain adequate firefighting equipment at each pump station, terminal, and tank farm. The equipment must be—

(a) In proper operating condition at all times;

(b) Plainly marked so that its identity as firefighting equipment is clear; and

(c) Located so that it is easily accessible.

§ 180.432 Storage vessels.

At least once during each 12-month period each carrier shall inspect each storage vessel (including atmospheric and pressure tanks).

§ 180.434 Signs.

Each carrier shall maintain caution signs visible to the public around each pumping station, terminal, or tank farm. Each sign shall contain the name of the carrier and an emergency telephone number to contact.

§ 180.436 Security of facilities.

Each carrier shall protect each pumping station, terminal, and tank farm and other exposed facility (such as scraper traps) from vandalism and unauthorized entry.

§ 180.438 Smoking or open flames.

Each carrier shall prohibit smoking and open flames in each pump station area and each terminal or tank farm area where there is a possibility of the leakage of dangerous goods or of the presence of vapors from dangerous goods.

Subpart G—Qualification and Requalification of Pipelines

§ 180.500 Scope.

This subpart prescribes minimum testing requirements for the qualification and requalification of pipelines constructed with steel pipe.

§ 180.502 Requalification of pipelines.

(a) After the applicable date determined under paragraph (b), (c), or (d) of this section, no carrier may operate a pipeline system until it has qualified or requalified that system by a hydrostatic test in accordance with § 180.302.

(b) In the case of line sections constructed after 1958 that have previously successfully withstood a hydrostatic test of at least 1.1 times the internal design pressure for the line section, the carrier shall requalify the line section no later than 15 years after the date of the latest test and at least once during each 10-year period thereafter.

(c) In the case of line sections constructed before 1959 that have previously successfully withstood a hydrostatic test of at least 1.1 times the internal design pressure for the line section, the carrier shall requalify the line section no later than 10 years after the date of the latest test, or before December 31, 1974, whichever is later, and at least once during each 10-year period thereafter.

(d) In the case of line sections that have never been subjected to a hydrostatic test of at least 1.1 times the internal design pressure for the line section, the carrier shall qualify the line section no later than 5 years after [effective date of amendment] and at least once during each 10-year period thereafter.

§ 180.504 Maintenance test of pipelines.

Within 5 years after [effective date of amendment] and at least once during each 5-year period thereafter, the carrier shall analyze the maintenance records for each line section. The carrier shall retain its most recent analysis for examination by the Administrator. After examination and evaluation, the Administrator will determine if the condition of any particular line section requires retesting. If retesting is required, the Administrator will so notify the carrier, and the carrier shall perform a retest within one year after the notification unless the Administrator requires the test to be performed sooner.

§ 180.506 Records.

Not later than [6 months after effective date of amendment] each carrier shall prepare, and thereafter maintain and keep open for inspection at his principal place of business, a record of each line section that is subject to this subpart. These records must show the location of each of the line sections by State and county, date constructed, the diameter, wall thickness, type of pipe, and yield strength of the pipe. These records must also include appropriate data to indicate when line sections were hydrostatically tested. In any case in which this information is not available for tests performed before [effective date of amendment] the carrier shall certify that the tests were performed and his records shall so indicate.

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