

(6) Piping in which liquids may accumulate must be provided with drains or drips.

(7) The arrangement of piping and supports must be designed to provide safety under operating stresses.

(8) Suitable precautions, such as increasing the pipe wall thickness, must be taken where internal corrosive conditions may exist. All underground piping must be protected against corrosion where soil tests or experience indicate that the soil is corrosive.

(9) Each joint between sections of tubing and pipe, and between tubing or pipe and valves or fittings, must be made in a manner suitable for the pressure and temperature condition. Slip type expansion joints may not be used. Expansion must be taken care of by providing flexibility within the piping or tubing system itself.

(10) Each control line must be protected from predictable causes of damage and must be designed and installed to prevent damage to any one control line from making both the district regulator and the overpressure protective device inoperative.

[F.R. Doc. 70-4344; Filed, Apr. 7, 1970; 8:52 a.m.]

Office of Pipeline Safety

[49 CFR Parts 192, 195]

[Notice 70-6; Docket No. OPS-3F]

MINIMUM FEDERAL SAFETY STANDARDS FOR GAS PIPELINES

Testing and Upgrading

The Department of Transportation is developing proposals for the comprehensive minimum Federal safety standards for gas pipeline facilities and for the transportation of gas, as required by subsection 3(b) of the Natural Gas Pipeline Safety Act of 1968. This notice of proposed rulemaking is the seventh of a series of notices by which the proposed Federal safety standards will be issued for public comment.

Interested persons are invited to participate in the making of these proposed rules by submitting written data, views, or arguments as they may desire. Communications should identify the regulatory docket and notice number and be submitted in duplicate to the Office of Pipeline Safety, Department of Transportation, 400 Sixth Street SW., Washington, D.C. 20590. Communications received before May 25, 1970, will be considered before taking final action on this notice. All comments will be available for examination by interested persons at the Office of Pipeline Safety before and after the closing date for comments. The proposals contained in this notice may be changed in light of comments received.

The first notice in this series was published in the FEDERAL REGISTER on November 21, 1969 (Notice 69-3; F.R. 18556). That notice discussed both the Department's plan for establishing the minimum Federal standards and the source materials to be used in develop-

ing proposals for these standards. It also proposed, without stating specific regulatory language, several requirements for inclusion in the minimum Federal standards. This notice sets forth the specific regulations that are being proposed as testing and upgrading requirements.

Included in this notice are proposed Subparts J and K of Part 192 which contain—

(1) The general requirements for strength testing new, relocated, or replaced pipelines, mains, and related facilities that are presently contained in sections 841 and 842 of chapter IV of the USAS B31.8 Code;

(2) The general requirements for qualifying pipelines, mains, and related facilities for higher operating pressures that are presently contained in section 845 of chapter IV of the USAS B31.8 Code; and

(3) Certain of the additional requirements that were discussed in Notice 69-3 and other additional requirements the basis for which is discussed in this preamble.

Although these proposed regulations closely parallel the presently effective interim standards that are set forth in the USAS B31.8 Code, a number of differences will be noted. For the most part these are nonsubstantive in nature.

A number of Code provisions are not included because they contain unnecessarily detailed specifications for which a performance requirement already existed or could be readily substituted. Any person reviewing the proposed regulation who feels that the omission of any language or the manner of revision would decrease the presently required level of safety should state his conclusions and supporting reasons in his comments. Similarly, if a proposed performance requirement does not appear to be an adequate substitute for an omitted specification requirement this should also be stated with supporting reasons.

To assist persons in reviewing and commenting on the proposed regulations, this notice contains a derivation table showing, to the extent possible, the source of proposed requirements. In most cases this is the USAS B31.8 Code. Some are derived from various State regulations, and others are based on recommendations made by the National Transportation Safety Board. Changes from the present requirements of USAS B31.8 of particular note are discussed below:

SUBPART J—LEAK AND STRENGTH TEST REQUIREMENTS

Section 192.501. The leak and strength test requirements of this subpart apply to relocations and replacement of pipelines and mains as well as to new installations. This broadening of the present applicability of the comparable code requirements has been made since it appears reasonable to require pipe that is replaced or relocated to meet the same test requirements as new pipe before it is put into operation.

Section 192.503(b). Presently the B31.8 Code only allows water as a test medium.

This proposed section would authorize the use of any liquid as a test medium as long as it meets the stated criteria.

Section 192.505. This section is based for the most part on sections 841.411 through 416 of the B31.8 Code. However, the authorization to use air as a test medium in class 3 and 4 locations under certain circumstances that are presently contained in section 841.413 is omitted. It is recognized that this may require more advanced scheduling requirements than is presently the case and comments on the lead time problems and any other problems that could arise from eliminating this authorization are invited. In addition, the required minimum test pressure for pipelines and mains in class 3 and 4 locations would be 150 percent of maximum operating pressure.

An additional provision has been added to the present test requirements to require that a hydrostatic test must be conducted at a test pressure of at least 1.25 times the maximum operating pressure for any point on a pipeline within 300 feet of a building intended for human occupancy. In no event may the length of pipe tested under this requirement be less than 600 feet.

At present there is no minimum time limit for the strength test requirements in the code. Section 192.505 proposes to require that test pressure should be maintained for at least 24 consecutive hours.

A new provision has been included in § 192.505(c), comparable to § 195.304, to eliminate the need for a field test for a component other than pipe, such as a valve or fitting, if it is the only item being added or replaced and if the manufacturer certifies that it was previously tested to certain stated criteria. This provision also permits a shorter test for above ground pipeline facilities and certain fabricated units.

Section 192.511. This section for the most part reflects the present requirements of section 841.44. However, as indicated in Notice 69-3, specific minimum pressure requirements have been included that are not contained in the present requirements. In addition, the proposed test pressure for pipe with a coating that is able to seal a leak is 125 p.s.i.g. rather than the present 100 p.s.i.g.

Section 192.515(b). As Notice 69-3 stated, a provision has been included to require that the person conducting a test shall dispose of the test medium in a manner that will not be detrimental to the environment.

Section 192.517. The recordkeeping requirements of present section 841.417 have been expanded to state additional information that it is felt must be recorded to comply with the spirit and intent of chapter V of the code.

SUBPART K—UPGRADING

Section 192.553. This proposed section contains new requirements for increasing pressure in existing pipeline systems. Presently sections 845.23(c), 845.34(c), 845.35(c), and 845.44(c) contain some general requirements for increasing pressure "gradually" or "by steps" when qualifying a pipeline or main

for an increase in operating pressure or when converting from a low pressure to a high pressure distribution system. The proposed requirements would limit each step increase to not more than 25 percent of the total proposed pressure increase and would require between each increase, an interval of constant pressure of sufficient duration for the entire pipeline, main, or pipeline system affected to be checked for leaks.

This section also contains recordkeeping requirements applicable to all upratings covered by the subpart even though the present code requirements for recordkeeping are less broad in scope.

Consistent with a recommendation of the National Transportation Safety Board, this section contains a proposed requirement that each operator prepare and follow a written plan that would ensure that all applicable requirements are met for each system being updated.

Section 192.555. Paragraph (a) of this section is based on the "Note" presently contained in 845.23. However, as proposed, the uprating requirements relate to previous "maximum actual operating pressure" rather than "maximum allowable operating pressure." This is because the present code requirements would appear to be effective only if previous maximum "actual" operating pressures are controlling (this applies to proposed §§ 192.557 and 192.559). Further, a 5-year limit has been added whereas the present code refers to the previous "several years."

As was described in Notice 69-3, paragraph (b) (2) of § 192.555 (and also § 192.557(c) (3)) requires a leakage survey in every uprating rather than just where certain conditions exist as is the case under the present code requirements.

The authority to increase operating pressure in a pipeline, or main not previously tested, that is presently contained in section 845.23(b) (3), is reflected in § 192.555(c) (3) but is limited to a pipeline or main in a class 1 location. This is to be consistent with the philosophy which is reflected in the prohibition in proposed § 192.505 against testing with gas in other than a class 1 location.

In consideration of the foregoing, the Department proposes to amend Title 49 of the Federal Regulations by adding a new Part 192 to include Subparts J and K as set forth below.

This notice is issued under the authority of the Natural Gas Pipeline Safety Act of 1968 (49 U.S.C. sec. 1671 et seq.), Part 1 of the Regulations of the Office of the Secretary of Transportation (49 CFR Part 1), and the delegation of authority to the Director, Office of Pipeline Safety, dated November 6, 1968 (33 F.R. 16468).

Issued in Washington, D.C., on April 1, 1970.

W. C. JENNINGS,
Acting Director,
Office of Pipeline Safety.

Subpart J—Leak and Strength Test Requirements

DERIVATION TABLE

New section	Source
192.501-----	New and 195.
192.503-----	841.31 and 49 CFR 195.306.
192.505(a) --	841.412. 841.414. 841.415 and 49 CFR 195.302.
192.505(b) --	New.
192.505(c) --	New and 195.304.
192.507-----	841.42.
192.509-----	841.43.
192.511-----	841.44 plus changes recommended by Technical Committee.
192.513-----	842.5.
192.515(a) --	841.5.
192.515(b) --	New.
192.517-----	841.417 and 195.

Sec.

- 192.501 Scope.
- 192.503 General requirements.
- 192.505 Strength test requirements for steel pipelines and mains to operate at hoop stresses of 30 percent or more of specified minimum yield strength.
- 192.507 Strength test requirements for steel pipelines, mains, and related facilities to operate at hoop stresses less than 30 percent of specified minimum yield strength and at or above 100 p.s.i.g.
- 192.509 Leak tests for pipelines, mains, and related facilities (other than plastic) to operate at or above 100 p.s.i.g.
- 192.511 Leak test requirements for pipelines, mains, and related facilities (other than plastic) to operate below 100 p.s.i.g.
- 192.513 Test requirements for plastic pipe.
- 192.515 Environmental protection and safety requirements.
- 192.517 Records.

Subpart J—Leak and Strength Test Requirements

§ 192.501 Scope.

This subpart applies to and prescribes minimum leak and strength test requirements for new pipelines, mains, and related facilities and the return to operation of a pipeline, main, or related facility that has been relocated or replaced.

§ 192.503 General requirements.

(a) No person may operate a pipeline or main, or a related facility, until it has—

- (1) Been tested in accordance with this subpart; and
- (2) Each leak has been located and eliminated.

(b) For the purposes of this subpart, each liquid test medium used must, while being used—

- (1) Not be corrosive to the material of which the pipeline, main, or facility being tested is constructed;
- (2) Be relatively free of sedimentary materials; and
- (3) Be nonflammable.

§ 192.505 Strength test requirements for steel pipelines and mains to operate at hoop stresses of 30 percent or more of specified minimum yield strength.

(a) For a steel pipeline, main, or related facility, that is to operate at a hoop

stress of 30 percent or more of the specified minimum yield strength, a strength test must be conducted in accordance with this section. The required test medium and test level are set forth in the following table:

Location	Test medium	Required test pressure	
		Minimum ²	Maximum ³
1 ¹ -----	Liquid-----	1.1 xmop-----	None.
	Air or Gas-----	1.1 xmop-----	1.1 xd p.
2 ¹ -----	Liquid-----	1.25 xmop-----	None.
	Air-----	1.25 xmop-----	1.25 xd p.
3-----	Liquid-----	1.50 xmop-----	None.
4-----	Liquid-----	1.50 xmop-----	None.

¹ If there is a building intended for human occupancy within 300 feet of a pipeline, main, or related facility a hydrostatic test must be conducted to a test pressure of at least 1.25 xmop on that part of the pipeline, main or related facility within 300 feet of such a building, but in no event may the test section be less than 600 feet.

² mop=maximum operating pressure.

³ d p=design pressure.

(b) Pipeline facilities in a class 1 location that are required to be constructed to a design factor of at least 0.6 may be tested in accordance with class 1 location testing requirements. Except for uncased pipelines crossing hard surfaced roads and railroads in a class 2 location, pipeline facilities that are required to be constructed to a design factor of at least 0.5 must be tested to at least class 3 location test requirements.

(c) Except as provided in paragraph (e) of this section, the field test must be conducted by maintaining the test pressure for at least 24 consecutive hours after the test pressure has stabilized in all parts of the pipeline facility being tested.

(d) If a component other than pipe, such as a fitting or valve is the only item being replaced or added to a pipeline system, a strength test after installation is not required if the manufacturer certifies that the component was tested to at least the pressure required by paragraph (a) of this section for the applicable class location.

(e) For pipeline facilities installed above ground and for short sections of pipe and fabricated units for which a postinstallation test is impractical, the minimum test duration is 4 hours. Each unit being tested under this paragraph must be visually inspected during the test.

§ 192.507 Strength test requirements for steel pipelines, mains, and related facilities to operate at hoop stresses less than 30 percent of specified minimum yield strength and at or above 100 p.s.i.g.

(a) For a steel pipeline, main, or related facility that is to operate at a hoop stress less than 30 percent of SMYS but above 100 p.s.i.g., a strength test must be conducted in accordance with this section.

(b) Pipeline facilities in a class 1 location must be tested to at least the requirements of § 192.509.

(c) Pipeline facilities in a class 2, 3, or 4 location must be tested in accordance with § 192.505(a), except that gas

or air may be used as the test medium within the following limits:

Class location	Gas maximum hoop stress permitted as percentage of SMYS	Air maximum hoop stress permitted as percentage of SMYS
2	30	75
3	30	50
4	30	40

(d) The minimum test duration is 4 consecutive hours.

§ 192.509 Leak tests for pipelines, mains, and related facilities (other than plastic) to operate at or above 100 p.s.i.g.

For a pipeline, main, or related facility (other than plastic) that is to operate at or above 100 p.s.i.g., a leak test must be conducted in accordance with the following:

(a) The pipeline operator must choose a test procedure that is able to disclose all leaks in the section being tested; and

(b) If, during the strength test, the pipeline facility is to be stressed to 20 percent or more of the specified minimum yield strength of the pipe, and gas or air is the test medium, a leak test must first be made at a pressure between 100 p.s.i.g. and the pressure required to produce a hoop stress of 28 percent of SMYS or the line must be walked to check for leaks while the hoop stress is held at approximately 20 percent of SMYS.

§ 192.511 Leak test requirements for pipelines, mains, and related facilities (other than plastic) to operate below 100 p.s.i.g.

(a) For a pipeline, main, or related facility (other than plastic) that is to operate below 100 p.s.i.g., a leak test must be conducted in accordance with this section.

(b) Distribution mains and related facilities that are to operate at less than 1 p.s.i.g. must be tested to at least 10 p.s.i.g., and those to operate at or above 1 p.s.i.g. must be tested to at least 100 p.s.i.g.

(c) Pipelines, mains, and related facilities with a coating capable of sealing a leak must be tested to a minimum of 125 p.s.i.g.

§ 192.513 Test requirements for plastic pipe.

(a) For a plastic pipeline, main, or related facility (except a tie-in section), a test must be conducted in accordance with this section.

(b) The test procedure used, including the test duration must be able to disclose all leaks in the section being tested.

(c) The test pressure must be at least 1.5 times the maximum operating pressure or 50 p.s.i.g., whichever is greater. However, the maximum test pressure must not exceed three times the design pressure of the pipe.

(d) No test may begin until sufficient time has elapsed after installation of the pipe for all joints to set properly.

(e) The test medium may be gas, air, or water.

(f) The temperature of thermoplastic material must not exceed 100° F. during the test.

§ 192.515 Environmental protection and safety requirements.

(a) In conducting tests under this subpart, each pipeline operator and each testing company shall take every reasonable precaution to protect its employees and the general public during the testing. Whenever the hoop stress of the pipeline, main, or related facility being tested will exceed 50 percent of the SMYS of the pipeline facility, the person in charge of the testing shall take all practicable steps to keep persons not working on the testing operation outside of the testing area until the pressure is reduced to or below the pipeline facilities' proposed maximum operating pressure.

(b) The person conducting the test shall dispose of the test medium in a manner that will not be detrimental to the environment.

§ 192.517 Records.

Each operating company shall make, and retain for the useful life of the pipeline, main, or facility, a record of each test performed under this subpart. The record must contain at least the following information:

(a) The operator's name, the name of the operator's employee responsible for making the test, and the name of the test company used, if any.

(b) Proposed maximum operating pressure and maximum allowable operating pressure.

(c) Test medium used.

(d) Test pressure.

(e) Test duration.

(f) Pressure recording charts.

(g) Elevation variations of test section.

(h) Leaks and failures noted and their disposition.

Subpart K—Uprating

§ 192.551 Scope.

This subpart prescribes minimum requirements for qualifying pipelines, mains, and pipeline systems to operate at a new or higher operating pressure, and for converting a low-pressure distribution system to a high-pressure distribution system.

§ 192.553 General requirements.

(a) *Pressure increases.* Whenever the requirements of this subpart authorize an increase in the operating pressure of a pipeline, main, or pipeline system, the pressure must be increased gradually, at a rate that can be controlled, and in accordance with the following:

(1) The increase must be made in increments, each of which is not more than 25 percent of the total increase.

(2) At the end of each incremental increase, the pressure must be held constant for a sufficient period of time for the entire pipeline, main, or pipeline system that is affected, to be checked for leaks.

(3) Each leak detected must be repaired before a further pressure increase is made.

(b) *Records.* Each operator who uprates a pipeline, main, or pipeline system under this subpart, shall retain for the life of that pipeline, main, or pipeline system a record of each investigation required by this subpart, of all work performed, and of each pressure test conducted, in connection with the uprating.

(c) *Written plan.* Each operator shall prepare and follow a written plan that will insure that each applicable requirement of this subpart is complied with.

§ 192.555 Uprating to a pressure that will produce a hoop stress of 30 percent or more of specified minimum yield strength: Steel pipelines or mains.

(a) Unless during the preceding 5 years the requirements of this section, or the applicable strength test requirements for a new pipeline or main, have been met, no person may subject a steel pipeline or main to an operating pressure above the highest maximum actual operating pressure experienced during the preceding 5 years if the increased pressure will produce a hoop stress of 30 percent or more of specified minimum yield strength. However, in no event may the operating pressure exceed the maximum that would be allowed under this part for a new line, constructed of the same materials, in the same location.

(b) Before increasing the operating pressure the operator shall—

(1) Review the design and previous testing of the pipeline or main to determine whether the proposed increase is safe and consistent with the requirements of this part;

(2) Determine the condition of the pipeline or main by leakage surveys and other field inspections and by examining maintenance records, corrosion surveys, and other suitable means; and

Subpart K—Uprating

DERIVATION TABLE

New section	Source
192.551	---- New.
192.553(a)	- 845.23(c), 845.34(c), 845.35(e), 845.44(c), and new requirements.
192.553(b)	- 845.23(d), 845.34(d).
192.555	---- 845.23(a), (b), and (c).
192.557	---- 845.34(a), (b), and (c).
192.559	---- 845.35.
192.561	---- 845.44(a) and (b).
Sec.	
192.551	Scope.
192.553	General requirements.
192.555	Uprating to a pressure that will produce a hoop stress of 30 percent or more of specified minimum yield strength: Steel pipelines or mains.
192.557	Uprating: Steel pipelines or mains to a pressure that will produce a hoop stress less than 30 percent of specified minimum yield strength; and plastic pipelines or mains.
192.559	Uprating: Cast iron or ductile iron high-pressure main or system.
192.561	Conversion of low-pressure distribution system to high-pressure distribution system.

(3) Make any repairs, replacements, or alterations in the pipeline or main that are found to be necessary.

(c) After complying with paragraph (b) of this section, the operating pressure may be increased if at least one of the following requirements is met:

(1) The condition, as determined under paragraph (b) of this section, indicates that the pipeline or main is able to meet the increased operating pressure consistent with the design requirements of this part and the pipeline or main has previously been tested to a pressure equal to or greater than that required by this part for a new line of the same material, in the same location, to operate under the same conditions.

(2) Before increasing the operating pressure the pipeline or main is successfully tested in accordance with the requirements of this part for a new line of the same material, in the same location, and to operate under the same conditions.

(3) A new operating pressure may be established for a pipeline or main in a class 1 location if the line has not previously been tested, and if—

(i) It is impractical to test it in accordance with the requirements of this part,

(ii) The new maximum operating pressure does not exceed 80 percent of that allowed for a new line of the same design in the same location, and,

(iii) The operator determines that the new operating pressure is consistent with the condition of the pipeline, or main and the design requirements of this part.

§ 192.557 Upgrading: Steel pipelines or mains to a pressure that will produce a hoop stress less than 30 percent of specified minimum yield strength; and plastic pipelines or mains.

(a) This section applies to steel pipelines or mains that are to operate at a pressure that will produce a hoop stress less than 30 percent of specified minimum yield strength and to plastic pipelines or mains.

(b) Unless during the preceding 5 years the requirements of this section, or the applicable test requirements for a new pipeline or main have been met, no person may subject a pipeline or main to which this section applies to an operating pressure above the highest maximum actual operating pressure during the preceding 5 years.

(c) Before increasing the operating pressure the operator shall—

(1) Review and consider the design of the pipeline or main including the material and equipment used;

(2) Review and consider past maintenance records including the results of previous leakage surveys;

(3) Make a leakage survey and repair any leaks that are found;

(4) Repair or replace parts of the pipeline or mains found not to conform to the requirements of this part for a new pipeline or main to be operated at the higher operating pressure in the same location;

(5) If the new operating pressure is to be over 60 p.s.i.g., install regulating and limiting devices on the service lines in accordance with § 192.559 (845.53) for a new system;

(6) Reinforce or anchor offsets, bends, and dead ends in coupled pipe sufficiently to avoid movement of the pipe if the offset, bend, or dead end is exposed in an excavation.

§ 192.559 Upgrading: Cast iron or ductile iron high pressure main or system.

(a) Unless during the preceding 5 years the requirements of this section have been met, no person may subject a cast iron or ductile iron high-pressure main or system to an operating pressure above the highest maximum actual operating pressure during the preceding 5 years.

(b) In any event, no person may subject a cast iron or ductile iron high-pressure main or system to a pressure that exceeds the lowest of the following pressures, as applicable:

(1) For a cast iron main or system the maximum allowable operating pressure may not exceed the pressure allowed by § 192.619 or § 192.557 (842.1).

(2) For a ductile iron main or system the maximum allowable operating pressure may not exceed the pressure allowed by § 192.557 (842.21).

(c) If records are not sufficiently complete to ascertain compliance with § 192.557 (842.11) or § 192.557 (842.21), as applicable, the following procedures must be followed:

(1) If the original laying conditions cannot be ascertained, the operator shall assume when applying the design formulas of USAS A 21.1 that cast iron pipe was supported on blocks with tamped backfill and when applying the design formulas of USAS A 21.50 that ductile iron pipe was laid without blocks with tamped backfill.

(2) Unless the actual maximum cover depth is known, the operator shall measure the actual cover in at least three places where the cover is most likely to be greatest and shall use the greatest cover measured.

(3) Unless the actual nominal wall thickness is known, the operator shall determine the wall thickness by cutting and measuring coupons from at least three separate pipe lengths. The coupons must be cut from pipe lengths in areas where the cover depth is most likely to be the greatest. The average of all meas-

urements taken must be increased by the allowance indicated in the following table:

Pipe size (inches)	Allowance (inches)		
	Cast iron pipe		Ductile iron pipe
	Pit cast pipe	Centrifugally cast pipe	
3-8	0.075	0.085	0.068
10-12	0.08	0.07	0.07
14-24	0.08	0.08	0.075
30-42	0.09	0.09	0.075
48	0.09	0.09	0.08
54-60	0.09		

The nominal wall thickness of the cast iron is the standard thickness listed in Table 10 or Table 11, as applicable, of USAS A21.1 nearest the value obtained under this subparagraph. The nominal wall thickness of ductile iron pipe is the standard thickness listed in Table 6 of USAS A21.50 nearest the value obtained under this subparagraph.

(4) For cast iron pipe, unless the pipe manufacturing process is known, the operator shall assume that the pipe is pit cast pipe with a bursting tensile strength of 11,000 p.s.i. and a modulus of rupture of 31,000 p.s.i.

(c) Before the operating pressure in a cast iron or ductile iron high-pressure main or system is increased the requirements of § 192.557(c) must be complied with. The requirements of paragraph (c) (6) also apply to bell and spigot joined pipe.

§ 192.561 Conversion of low-pressure distribution system to high-pressure distribution system.

(a) No person may convert a distribution system from low-pressure to high-pressure except in accordance with this section.

(b) Before increasing the pressure the operator shall—

(1) Review the design of the system, including the materials and equipment used, and the past maintenance records, including results of leakage surveys, to determine whether the proposed conversion is safe and is consistent with the requirements of this part.

(2) Make a leakage survey and repair all leaks that are found.

(3) Reinforce or replace any part of the system found to be inadequate for the proposed higher operating pressure.

(4) Install a service regulator on each service line, and test each regulator to determine that it is functioning.

(5) Isolate the system from any adjacent low-pressure system.

(6) Check each bend or offset in coupled or bell and spigot pipe, and reinforce or replace each anchorage found to be inadequate for the proposed higher pressure.

[F.R. Doc. 70-4189; Filed, Apr. 7, 1970; 8:45 a.m.]