FG

ORIGINAL

Decision No. 86874

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application of CALIFORNIA-PACIFIC UTILITIES COMPANY, PACIFIC GAS AND ELECTRIC COMPANY, SAN DIEGO GAS & ELECTRIC COMPANY, SOUTHERN CALIFORNIA GAS COMPANY, and SOUTHWEST GAS CORPORATION, public utility gas corporations, for an Order modifying General Order No. 112-C adopted April 2, 1971, in Decision No. 78513 in order to conform with the changes to the Minimum Federal Safety Standards issued by the Department of Transportation, Office of Pipeline Safety, as more particularly set forth in the Application herein.	Application No. 56888 (Filed November 22, 1976)

O P I N I O N

Applicants' Request

This application was filed pursuant to the authority granted in Section 142.1 of the Commission's General Order No. 112-C.1/

1/ Section 142.1 of General Order No. 112-C provides:
"142.1. For the purpose of keeping the provisions, rules, standards, and specifications of this General Order up to date, the gas utilities subject to these rules, either individually or collectively, shall file an application setting forth such recommended changes in rules, standards, or specifications as they deem necessary to keep this General Order up to date in keeping with the purpose, scope and intent thereof. However, nothing herein shall preclude other interested parties from initiating appropriate formal proceedings to have the Commission consider any changes they deem appropriate, or the Commission from acting upon its own motion."

Applicants are requesting an Order from the Commission incorporating the addition of Sections 192.179 (d) and 192.755 and amending the following Sections

192.167	192.13	192.243	192.615
192.319	192.111	192.245	192.619
192.327	192.145	192.313	192.713
192.451	192.161	192.317	192.717
192.707	192.163	192.465	192.727
192.3	192.225	192.469	192.753
192.5	192.227	192.481	

and Appendices A.I., A.II., and B.I. of General Order 112-C, to conform with the changes to the Minimum Federal Safety Standard issued by the Office of Pipeline Safety.

Section 192.1 Scope of part is expanded to include offshore gathering lines in Class I locations under the authority of the Hazardous Materials Transportation Act (88 Stat. 2156, 49 USC 1801), but as this section of G.O. 112-C already covers "gas pipeline facilities owned or operated by the utility", there appears to be no need to amend this section of the General Order.

Section 192.3 Definitions. This revision includes the definition of "Offshore".

Section 192.5 Class locations is amended to classify offshore as a Class I location. In those instances where a requirement for offshore is different from that for Class I onshore facilities, the section of G.O. 112-C in question is amended to separately state such different requirement.

Section 192.13 General. This amendment provides that the design, installation, construction and initial inspection and testing requirements, as well as requirements for replacement relocation or other changes to existing offshore gathering lines do not become effective until after July 31, 1977.

Section 192.111 (d) Design factor (F) for steel pipe. This amendment provides that a design factor of 0.5 or less must be used for steel pipe on platforms, including the riser both offshore and in inland navigable waters. This will provide additional safety on the platform where the level of activity and the exposure is greater. Risers are included because of their proximity and exposure to wave action and interference from vessels.

Section 192.145 Valves. This amendment substitutes material specifications MSS SP-70, MSS SP-71 and MSS SP-78 for MSS SP-52 presently listed. This is part of the update of industry documents which replaces those now out of print or obsolete due to changes in demand for material or improvements in manufacturing.

Section 192.161 (f) Support and anchors. This proposed amendment would exempt offshore pipelines from the requirement for a firm foundation for both header and branch to prevent lateral and vertical movement, and allow operators to install flexible connections offshore. Since there is no supporting evidence that this will not unreasonably reduce present standards of gas safety this proposal is rejected.

Section 192.163 (a) Compressor stations: design and construction. This amendment exempts compressor station buildings on platforms, either offshore or in inland navigable waters, from the location requirements applicable to onshore compressor stations. Compressor station buildings on platforms are still protected against fire under 192.163 (b) requiring non-combustible materials.

Section 192.167 Compressor stations: emergency shutdown. This amendment provides specific coverage for emergency shutdown of compressor stations on platforms.

Section 192.179 Transmission line valves. A new paragraph (d) is added requiring offshore segments of transmission lines to be equipped with valves or other components to shut off the flow of gas to the facilities on an offshore platform in an emergency.

Section 192.225 Qualification of welding procedures is amended to update the reference to the ASME Boiler and Pressure Vessel Code.

Section 192.227 (a) (1) Qualification of welders is amended for the same reason as 192.225.

Section 192.243 Nondestructive testing is amended to require 100% if practicable but not less than 90% of butt welds made daily in offshore pipelines to be nondestructively tested. Without this change offshore pipelines would fall under the requirements for Class I locations which specify a minimum of 20% to be tested.

Section 192.245 Repair or removal or defects

This proposed amendment permits the repair of all unacceptable welds on pipelines being installed offshore from a pipelay vessel. The objective is to eliminate the hazard associated with the removal, rather than repair, of unacceptable welds on pipelines being installed under the operating and working conditions of a pipelay vessel. Applicant argues that loss of tension in the pipe string, vessel motion, proper alignment, and limited access to the weld joint are serious problems which may arise during the removal process on board a pipelay vessel. This amendment was apparently proposed because of possibilities of damage to the pipe string and potential personnel hazards during construction. However, these arguments do not explain the effect on the metallurgical properties of the pipe shell at the joint after repeated additional repair attempts. Nor have applicants shown any attempt to circumvent this problem by increased effort towards quality control of welding at the joint.

The expected frequency of occurrence of unacceptable welds and the expense which would be incurred if a weld should have to be removed on a pipelay barge were not discussed. In addition, no mention was made of the frequency of occurrence of unacceptable welds, which even after additional repair attempts must still be removed. For these reasons, this proposed amendment is rejected.

Section 192.313 Bends and elbows

Applicant proposes to amend two requirements of this section. The first change deletes what is presently paragraph (a)(3) that a bend on pipe 12 inches or more in diameter must not deflect the pipe more than one and one-half degrees in any length of pipe equal to the diameter.

In support of this change, the results of testing by the Alyeska Pipeline Service Company were cited. Six lengths of 48-inch steel pipe were bent to radii ranging from 4 to 20 degrees. The 20-degree bend was equivalent to a deflection of 3 degrees per length of pipe equal to diameter. Evaluations were made of the effects on roundness, squareness of ends, end in plane, tensile strengths, toughness and thickness of pipe shell. Applicant reports that all bends were found to be smooth, uniform and without mechanical damage.

In addition, the experience and test results of Fluor Ocean Services, Inc. on the spooling of 8-inch and 12-inch diameter steel pipe were cited. The 8- and 12-inch pipes were bent during spooling on a 40-foot diameter core to a deflection of 3 degrees per length equal to the diameter. Samples from the spooled pipe were tested for tensile properties, work hardening, strain softening, weld ductility, ovaling and wall thinning. Fluor reported that spooling caused no adverse effects or mechanical damage to the pipe or welds. However, the spooling did cause the pipe to oval with a magnitude greater than 2½% of the nominal pipe diameter. The amount of ovaling does not decrease the strength of the pipe, but the ovaling could

result in high-lows when welding pipe at tie-ins. The tie-in welds were carefully made and x-rayed. No special problems had been discovered. Fluor states that 8.5 million feet of pipe, mostly 4-inch and 6-inch, have been installed with the Reel Technique (spooling).

Applicants propose no limitation to the amount of deflection in a pipe bend based on evidence supporting a deflection of 3 degrees per length of pipe equal to diameter. To protect the pipe shell it is proposed to rely upon relatively vague references to pipe serviceability and mechanical damage which apparently must be evaluated by visual inspection under field conditions. Furthermore, the results of all of the tests are based upon a limited number of samples tested under shop conditions. With the exception of spooling there is no long-term history of the performance of such bends under field conditions. Although some compelling evidence has been presented the Commission is still not convinced that this proposal does not sacrifice safety in exchange for expediency. Also it is doubtful that the equipment and skills required to successfully bend pipe would be readily available to the 12 small gas companies under Commission jurisdiction. Because of these reservations the bending limitation of paragraph (a)(3) will not be eliminated but will be raised to 3 degrees per length of arc equal to the diameter.

The second revision requests that the operator be allowed to modify the requirement that each circumferential weld of steel pipe subjected to stress during bending be nondestructively tested. Ocean Resources Engineering Inc. cited the impossibility of nondestructive testing after pulling pipe through J-tubes.

Report No. G-4 by Republic Steel Corporation, dated April 28, 1970, set forth test results of bending lengths of 30-inch diameter pipe with girth welds in the bend. Dye penetrant and magnetic particle examinations revealed no minute surface flaws.

Tensile tests on specimen taken across the wall and from the parent metal showed negligible influence on yield strength. Four examples were bent 1.57, 1.88, 2.14, and 1.57 degrees, respectively. The amount of bend per length equal to diameter does not support the removal of this qualification. Republic Steel also made hydrostatic tests on tubing which had been coiled and uncoiled from a spool claiming that this is similar to spooling steel pipe being installed from a pipelay barge. The bursting pressure of all specimen tested was far over the theoretical.

Both Ocean Resources Engineering Inc. and Republic Steel Corporation recommend that each circumferential weld of steel pipe must be nondestructively tested either before or after bending. Their recommendation appears reasonable. The tests made by Republic Steel Corporation and the reeling technique presented by Fluor Ocean Services illustrate that a sound circumferential weld is not adversely affected by bending. Thus, the existing restriction in paragraph 192.313 (b) prohibiting circumferential welds in bends in pipelines to operate at a hoop stress of 20 percent or more of the maximum allowable operating pressure is no longer necessary. Therefore, the revision is made to reflect the above-mentioned changes as set forth in Section 192.313 of the Appendix.

Section 192.317 Protection from hazards is amended to require protection of offshore pipelines from damage by mud slides, water currents, hurricanes, ship anchors, fishing operations and accidental damage by vessels.

Section 192.319 Installation of pipe in a ditch. Paragraph (b) is amended to limit backfilling requirements to construction techniques used onshore. This will allow continuation of the use of an offshore technique directing jets of water under pipe lengths in place and subsequent depositing of earth cover due to the natural action

of water currents. Paragraph (c) is added to require that offshore pipelines be protected against possible interference by fishing trawlers, damage by hurricanes, underwater currents, etc.

Section 192.327 Cover is amended to add cover requirements for pipelines installed in navigable rivers, streams or harbors.

Section 192.451 Scope. The proposed amendment to this section defers the effective date for subpart I to August 1, 1977 for offshore gathering lines.

Section 192.465 External corrosion control: monitoring is amended to eliminate the exception to offshore pipelines.

Section 192.469 External corrosion control is amended to delete the exceptions to offshore and wet marsh area pipelines. Practical locations such as on platforms or accessible onshore points are sufficient to determine the adequacy of cathodic protection in these environments.

Section 192.481 Atmospheric corrosion control: monitoring is amended to reduce the interval between re-evaluations of atmospheric corrosion of offshore pipelines from three years to one year.

Section 192.615 Emergency plans are set forth in considerably more detail to require operators to take prompt and effective action in responding to an emergency.

Section 192.619 Maximum allowable operating pressure: steel or plastic pipelines is amended to require testing of offshore pipelines to a pressure higher than that required for Class I locations. For underwater pipelines a factor of 1.25 was established and for platforms the new factor is 1.50.

Section 192.707 Line markers for mains and transmission lines is amended to exempt pipelines located offshore and under inland navigable waters from existing marking requirements.

Section 192.713 and 192.717 Transmission lines: permanent field repair. This proposed amendment would permit the use of mechanically applied full encirclement split sleeves in lieu of welding for permanent repairs on submerged pipelines.

Section 192.727 Abandonment or inactivation of facilities is amended to require offshore pipelines to be filled with either water or inert material. After offshore pipelines are purged of gas, there is a greater probability that a residue of liquid hydrocarbons will remain in the line. Filling with water would eliminate air and any potential for explosion.

Section 192.753 Caulked bell and spigot joints is amended to establish performance standards for the use of sealing methods and materials that provide a level of safety at least equal to that provided by mechanical leak clamps in sealing cast-iron bell and spigot joints.

Paragraph (a)(2)(ii) proposed is rejected due to the lack of a firm definition or criteria for identifying a permanent bond.

Section 192.755 Protecting cast-iron pipelines. This is a new section added to provide protection against potential damage arising when the support of a buried cast-iron main is disturbed.

Findings

Upon consideration of the evidence, the Commission finds that:

1. It is in the interest of the consuming public and the public utility corporations that General Order No. 112-C be revised to incorporate the addition of Section 192.755 and the amendment of the following Sections

192.3	192.179	192.327	192.619
192.5	192.225	192.451	192.707
192.13	192.227	192.465	192.713
192.111	192.243	192.469	192.717
192.145	192.313	192.481	192.727
192.163	192.317	192.615	192.753
192.167	192.319		

and portions of Appendices A and B to conform with the changes to the Minimum Federal Safety Standards issued by the Office of Pipeline Safety. The above addition and revisions are shown as applicants' Exhibits A through Z, AA through AG, together with the Commission's modifications to Sections 192.313 and 192.753.

2. The proposed amendments to the following sections should be rejected:

192.161
192.245
192.753(2)(ii)

3. A public hearing is not necessary. Pursuant to Section 5(a) of the Natural Gas Pipeline Safety Act of 1968 as amended pertaining to state's certification to the U.S. Department of Transportation due on January 20, 1977, the certification must include the statement that the state has adopted standards which are equivalent or more stringent than the Federal standards. Therefore, the effective date of this order should be the date hereof. The Commission having found as hereinbefore set forth concludes that it should issue its order as follows:

O R D E R

IT IS ORDERED that:

1. General Order No. 112-C be revised to incorporate the addition of Section 192.755 and the amendments to Sections

192.3	192.179	192.327	192.619
192.5	192.225	192.451	192.707
192.13	192.227	192.465	192.713
192.111	192.243	192.469	192.717
192.145	192.313	192.481	192.727
192.163	192.317	192.615	192.753
192.167	192.319		

and portions of Appendices A and B as shown in the Appendix to this decision to conform with the changes to the Minimum Federal Safety Standards issued by the Office of Pipeline Safety. The above amendments and addition are set forth in the Appendix of this decision.

2. The proposed amendments to the following sections be rejected:

192.161 192.245 192.753(2)(ii)

3. A copy of this decision shall be mailed to each gas corporation under the jurisdiction of this Commission.

The effective date of this order is the date hereof.

Dated at San Francisco, California, this 18th day of JANUARY, 1977.

Robert Batinovich
President
William Symons, Jr.
Vernon L. Sharp

Commissioners

APPENDIX

Amendments and Additions to General Order 112-C

Section 192.3 Definitions, is amended by adding the following new definition in alphabetical order:

> "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.

Paragraph (a) of Section 192.5 Class locations, is amended to read as follows:

> (a) Offshore is Class 1 location. The Class location onshore is determined by applying the criteria set forth in this section: The class location unit is an area that extends 220 yards on either side of the centerline of any continuous 1-mile length of pipeline. Except as provided in paragraphs (d) (2) and (f) of this section, the class location is determined by the buildings in the class location unit. For the purposes of this section, each separate dwelling unit in a multiple dwelling unit building is counted as a separate building intended for human occupancy.

Paragraphs (a) and (b) of Section 192.13 General, are amended to read as follows:

> (a) No person may operate a segment of pipeline that is readied for service after March 12, 1971, or in the case of an offshore gathering line, after July 31, 1977, unless that pipeline has been designed, installed, constructed, initially inspected, and initially tested in accordance with this part.
>
> (b) No person may operate a segment of pipeline that is replaced, relocated, or otherwise changed after November 12, 1970, or in the case of an offshore gathering line, after July 31, 1977, unless that replacement, relocation, or change has been made in accordance with this part.

Paragraph (d) of Section 192.111 Design factor (F) for steel pipe, is amended to read as follows:

> (d) For Class 1 and Class 2 locations, a design factor of 0.50, or less, must be used in the design formula in Sec. 192.105 for —
> (1) Steel pipe in a compressor station, regulating station, or measuring station; and
> (2) Steel pipe, including a pipe riser, on a platform located offshore or in inland navigable waters.

Paragraph (a) of Section 192.145 Valves, is amended to read as follows:

> (a) Each valve must meet the minimum requirements, or the equivalent, of API 6A, API 6D, MSS SP-70, MSS SP-71, or MSS SP-78, except that a valve designed before July 1, 1976, may meet the minimum requirements of MSS SP-52. A valve may not be used under operating conditions that exceed the applicable pressure-temperature ratings contained in those standards.

Paragraph (a) of Section 192.163 Compressor stations: design and construction, is amended to read as follows:

> (a) Location of compressor building. Except for a compressor building on a platform located offshore or in inland navigable waters, each main compressor building of a compressor station must be located on property under the control of the operator. It must be far enough away from adjacent property, not under control of the operator, to minimize the possibility of fire being communicated to the compressor building from structures on adjacent property. There must be enough open space around the main compressor building to allow the free movement of fire-fighting equipment.

Paragraph (a) (4) (ii) is amended and a new paragraph (c) is added to Section 192.167 Compressor stations: emergency shutdown, to read as follows:

(a) * * *
(4) * * *
(ii) Near the exit gates, if the station is fenced, or near emergency exits, if not fenced; and

* * * *

(c) On a platform located offshore or in inland navigable waters, the emergency shutdown system must be designed and installed to actuate automatically by each of the following events:
(1) In the case of an unattended compressor station --
(i) When the gas pressure equals the maximum allowable operating pressure plus 15 percent; or
(ii) When an uncontrolled fire occurs on the platform; and
(2) In the case of a compressor station in a building --
(i) When an uncontrolled fire occurs in the building; or
(ii) When the concentration of gas in air reaches 50 percent or more of the lower explosive limit in a building which has a source of ignition.

For the purpose of paragraph (c) (2) (ii) of this section, an electrical facility which conforms to Class 1, Group D of the National Electrical Code is not a source of ignition.

A new paragraph (d) to read as follows is added to Section 192.179 Transmission line valves:

(d) Offshore segments of transmission lines must be equipped with valves or other components to shut off the flow of gas to an offshore platform in an emergency.

Paragraph (a) of Section 192.225, Qualification of welding procedures, is amended to read as follows:

> (a) Each welding procedure must be qualified under Section IX of the 1974 edition of the ASME Boiler and Pressure Vessel Code or Section 2 of the 1973 edition of API Standard 1104, whichever is appropriate to the function of the weld, except that a welding procedure qualified under Section IX of the 1968 edition of the ASME Boiler and Pressure Vessel Code before July 1, 1976, or Section 2 of the 1968 edition of API Standard 1104 before March 20, 1975, may continue to be used but may not be requalified under that edition.

Subparagraph (a) (1) of Section 192.227, Qualification of welders, is amended to read as follows:

> (a) * * *
> (1) Section IX of the 1974 edition of the ASME Boiler and Pressure Vessel Code or, if qualified before July 1, 1976, the 1968 edition except that a welder may not requalify under the 1968 edition.

Paragraphs (d) (1) and (3) of Section 192.243, Nondestructive testing, are amended to read as follows:

> (d) * * *
> (1) In Class 1 locations, except offshore, at least 20 percent.
>
> * * * *
>
> (3) In Class 3 and Class 4 locations, at crossings of major or navigable rivers, and offshore, 100 percent if practicable, but not less than 90 percent.

Section 192.313 Bends and elbows, is revised to read as follows:

Sec. 192.313 Bends and elbows.

(a) Each field bend in steel pipe, other than a wrinkle bend made in accordance with Sec. 192.315, must comply with the following:

(1) A bend must not impair the serviceability of the pipe.

(2) For pipe more than 4 inches in nominal diameter, the difference between the maximum and minimum diameter at a bend must not be more than 2½ percent of the nominal diameter.

(3) A bend on pipe that is 12 inches, or more, in nominal diameter must not deflect the pipe more than three degrees in any length of pipe equal to the diameter.

(4) Each bend must have a smooth contour and be free from buckling, cracks, or any other mechanical damage.

(5) On pipe containing a longitudinal weld, the longitudinal weld must be as near as practicable to the neutral axis of the bend.

(b) Each circumferential weld of steel pipe that is subjected to stress during bending must be nondestructively tested. Preferably nondestructive testing should be performed after the bending operation, but for impractical situations such as pulling through J-tubes on offshore platforms and the spooling of pipe for offshore installation the tests may be made before the bending operation.

(c) Wrought-steel welding elbows and transverse segments of these elbows may not be used for changes in direction on steel pipe that is 2 inches or more in diameter unless the arc length, as measured along the crotch, is at least 1 inch.

Section 192.317 Protection from hazards, is amended to read as follows:

Sec. 192.317 Protection from hazards.

(a) Each transmission line or main must be protected from washouts, floods, unstable soil, landslides, or other hazards that may cause the pipeline to move or to sustain abnormal loads. In addition, offshore pipelines must be protected from damage by mud slides, water currents, hurricanes, ship anchors, and fishing operations.

(b) Each aboveground transmission line or main, not located offshore or in inland navigable water areas, must be protected from accidental damage by vehicular traffic or other similar causes, either by being placed at a safe distance from the traffic or by installing barricades.

(c) Pipelines, including pipe risers, on each platform located offshore or in inland navigable waters must be protected from accidental damage by vessels.

Paragraph (b) is amended and a new paragraph (c) is added to Section 192.319 Installation of pipe in a ditch, to read as follows:

(b) When a ditch for a transmission line or main is backfilled, it must be backfilled in a manner that --

(1) Provides firm support under the pipe; and

(2) Prevents damage to the pipe and pipe coating from equipment or from the backfill material.

(c) All offshore pipe in water at least 12 feet deep, but not more than 200 feet deep, as measured from the mean low tide, must be installed so that the top of the pipe is below the natural bottom unless the pipe is supported by stanchions, held in place by anchors or heavy concrete coating, or protected by an equivalent means.

Paragraph (a) is amended and a new paragraph (e) is added to Section 192.327 Cover, to read as follows:

> (a) Except as provided in paragraphs (c) and (e) of this section, each buried transmission line must be installed with a minimum cover as follows:
>
> * * * *
>
> (e) All pipe which is installed in a navigable river, stream, or harbor must have a minimum cover of 48 inches in soil or 24 inches in consolidated rock, and all pipe installed in any offshore location under water less than 12 feet deep, as measured from mean low tide, must have a minimum cover of 36 inches in soil or 18 inches in consolidated rock, between the top of the pipe and the natural bottom. However, less than the minimum cover is permitted in accordance with paragraph (c) of this section.

In Section 192.451 Scope, the existing paragraph is designated as paragraph (a) and a new paragraph (b) is added to read as follows:

> (b) Notwithstanding the deadlines for compliance in this subpart, the corrosion control requirements of this subpart do not apply to offshore gathering lines until August 1, 1977.

Paragraph (a) of Section 192.465 External corrosion control: monitoring, is amended to read as follows:

> (a) Each pipeline that is under cathodic protection must be tested at least once each calendar year, but with intervals not exceeding 15 months, to determine whether the cathodic protection meets the requirements of Sec. 192.463. However, if tests at those intervals are impractical for separately protected service lines or short sections of protected mains, not in excess of 100 feet, these service lines and mains may be surveyed on a sampling basis. At least 10 percent of these protected structures, distributed over the entire system, must be surveyed each calendar year, with a different 10 percent checked each subsequent year, so that the entire system is tested in each 10-year period.

Section 192.469 External corrosion control: test stations, is amended to read as follows:

Sec. 192.469 External corrosion control: test stations.

Each pipeline under cathodic protection required by this subpart must have sufficient test stations or other contact points for electrical measurement to determine the adequacy of cathodic protection.

Section 192.481 Atmospheric corrosion control: monitoring, is amended to read as follows:

Sec. 192.481 Atmospheric corrosion control: monitoring.

After meeting the requirements of Sections 192.479 (a) and (b), each operator shall, at intervals not exceeding 3 years for onshore pipelines and 1 year for offshore pipelines, reevaluate each pipeline that is exposed to the atmosphere and take remedial action whenever necessary to maintain protection against atmospheric corrosion.

Section 192.615 Emergency plans, is amended to read as follows:

Sec. 192.615 Emergency plans.

(a) Each operator shall establish written procedures to minimize the hazard resulting from a gas pipeline emergency. At a minimum, the procedures must provide for the following:

(1) Receiving, identifying, and classifying notices of events which require immediate response by the operator.

(2) Establishing and maintaining adequate means of communication with appropriate fire, police, and other public officials.

(3) Prompt and effective response to a notice of each type of emergency, including the following:

(i) Gas detected inside or near a building.

(ii) Fire located near or directly involving a pipeline facility.

(iii) Explosion occurring near or directly involving a pipeline facility.

(iv) Natural disaster.

(4) The availability of personnel, equipment, tools, and materials, as needed at the scene of an emergency.

(5) Actions directed toward protecting people first and then property.

(6) Emergency shutdown and pressure reduction in any section of the operator's pipeline system necessary to minimize hazards to life or property.

(7) Making safe any actual or potential hazard to life or property.

(8) Notifying appropriate fire, police, and other public officials of gas pipeline emergencies and coordinating with them both planned responses and actual responses during an emergency.

(9) Safely restoring any service outage.

(10) Beginning action under Sec. 192.617, if applicable, as soon after the end of the emergency as possible.

(b) Each operator shall —

(1) Furnish its supervisors who are responsible for emergency action a copy of that portion of the latest edition

of the emergency procedures established under paragraph (a) of this section as necessary for compliance with those procedures.

(2) Train the appropriate operating personnel to assure that they are knowledgeable of the emergency procedures and verify that the training is effective.

(3) Review employee activities to determine whether the procedures were effectively followed in each emergency.

(c) Each operator shall establish and maintain liaison with appropriate fire, police, and other public officials to —

(1) Learn the responsibility and resources of each government organization that may respond to a gas pipeline emergency;

(2) Acquaint the officials with the operator's ability in responding to a gas pipeline emergency;

(3) Identify the types of gas pipeline emergencies of which the operator notifies the officials; and

(4) Plan how the operator and officials can engage in mutual assistance to minimize hazards to life or property.

(d) Each operator shall establish a continuing educational program to enable customers, the public, appropriate government organizations, and persons engaged in excavation related activities to recognize a gas pipeline emergency for the purpose of reporting it to the operator or the appropriate public officials. The program and the media used must be as comprehensive as necessary to reach all areas in which the operator transports gas. The program must be conducted in English and in other languages commonly understood by a significant number and concentration of the non-English speaking population in the operator's area.

APPENDIX
Page 11 of 20

The table in paragraph (a)(2)(ii) in Section 192.619 Maximum allowable operating pressure: steel or plastic pipelines, is amended to read as follows:

(a) * * *
(2) * * *
(ii) * * *

Class Location	Factor 1/ Segment Installed Before (July 1, 1961)	Factor 1/ Segment Installed After (June 30, 1961)
1	1.1	1.25
2	1.25	1.25
3	1.4	1.5
4	1.4	1.5

1/ For segments installed or uprated after July 31, 1977, that are located on an offshore platform or on a platform in inland navigable waters, including a pipe riser, the factor is 1.5.

In paragraph (b) of Section 192.707 Transmission lines: markers, existing subparagraphs (1) and (2) are redesignated as (2) and (3) respectively and a new subparagraph (1) is added to read as follows:

(b) Exceptions for buried pipelines. Line markers are not required for buried mains and transmission lines --

(1) Located offshore or under inland navigable waters;

Section 192.713 Transmission lines: permanent field repair of imperfections and damages, is amended to read as follows:

Sec. 192.712 Transmission lines: permanent field repair of imperfections and damages.

(a) Except as provided in paragraph (b) of this section, each imperfection or damage that impairs the serviceability of a segment of steel transmission line operating at or above 40 percent of SMYS must be repaired as follows:

(1) If it is feasible to take the segment out of service, the imperfection or damage must be removed by cutting out a cylindrical piece of pipe and replacing it with pipe of similar or greater design strength.

(2) If it is not feasible to take the segment out of service, a full encirclement welded split sleeve of appropriate design must be applied over the imperfection or damage.

(3) If the segment is not taken out of service, the operating pressure must be reduced to a safe level during the repair operations.

(b) Submerged offshore pipelines and submerged pipelines in inland navigable waters may be repaired by mechanically applying a full encirclement split sleeve of appropriate design over the imperfection or damage.

Section 192.717 Transmission lines: permanent field repair of leaks, is amended to read as follows:

Sec. 192.717 Transmission lines: permanent field repair of leaks.

(a) Except as provided in paragraph (b) of this section, each permanent field repair of a leak on a transmission line must be made as follows:

(1) If feasible, the segment of transmission line must be taken out of service and repaired by cutting out a cylindrical piece of pipe and replacing it with pipe of similar or greater design strength.

(2) If it is not feasible to take the segment of transmission line out of service, repairs must be made by installing a full encirclement welded split sleeve of appropriate design, unless the transmission line --

(i) Is joined by mechanical couplings; and

(ii) Operates at less than 40 percent of SMYS.

(3) If the leak is due to a corrosion pit, the repair may be made by installing a properly designed bolt-on-leak clamp; or, if the leak is due to a corrosion pit and on pipe of not more than 40,000 psi SMYS, the repair may be made by fillet welding over the pitted area a steel plate patch with rounded corners, of the same or greater thickness than the pipe, and not more than one-half of the diameter of the pipe in size.

(b) Submerged offshore pipelines and submerged pipelines in inland navigable waters may be repaired by mechanically applying a full encirclement split sleeve of appropriate design over the leak.

Paragraphs (b) and (c) of Section 192.727 Abandonment and inactivation of facilities, are amended to read as follows:

(b) Each pipeline abandoned in place must be disconnected from all sources and supplies of gas; purged of gas; in the case of offshore pipelines, filled with water or inert materials; and sealed at the ends. However, the pipeline need not be purged when the volume of gas is so small that there is no potential hazard.

(c) Except for service lines, each inactive pipeline that is not being maintained under this part must be disconnected from all sources and supplies of gas; purged of gas; in the case of offshore pipelines, filled with water or inert materials; and sealed at the ends. However, the pipeline need not be purged when the volume of gas is so small that there is no potential hazard.

Paragraph (a) of Section 192.753 Caulked bell and spigot joints, is amended to read as follows:

Section 192.753 Caulked bell and spigot joints.

(a) Each cast-iron caulked bell and spigot joint that is subject to pressures of 25 psig or more must be sealed with:

(1) A mechanical leak clamp; or

(2) A material or device which --

(i) Does not reduce the flexibility of the joint; and

(ii) Seals and bonds in a manner that meets the strength, environmental, and chemical compatibility requirements of Sections 192.53 (a) and (b) and 192.143.

* * * *

A new Section 192.755 Protecting cast-iron pipelines, is added to G.O. No. 112-C to read as follows:

Sec. 192.755 Protecting cast-iron pipelines.

When an operator has knowledge that the support for a segment of a buried cast-iron pipeline is disturbed:

(a) That segment of the pipeline must be protected, as necessary, against damage during the disturbance by:

(1) Vibrations from heavy construction equipment, trains, trucks, buses, or blasting;

(2) Impact forces by vehicles;

(3) Earth movement;

(4) Apparent future excavations near the pipeline; or

(5) Other foreseeable outside forces which may subject that segment of the pipeline to bending stress.

(b) As soon as feasible, appropriate steps must be taken to provide permanent protection for the disturbed segment from damage that might result from external loads, including compliance with applicable requirements Sections 192.317(a), 192.319, and 192.361(b)-(d).

A new heading is added to the table of sections of Subpart M to read as follows:

Sec. 192.755 Protecting cast-iron pipelines

Appendix A.I.(F) is amended to read as follows:

I. List of organizations and addresses.

* * * * *

(F) National Fire Protection Association (NFPA), 470 Atlantic Avenue, Boston, Massachusetts 02110.

Appendix A.II. is amended to read as follows:

II. Documents incorporated by reference. Numbers in parentheses indicate applicable editions. Only the latest listed edition applies, except that an earlier listed edition may be followed with respect to pipe or components which were manufactured, designed, or installed before July 1, 1976, unless otherwise provided in this part.

A. American Petroleum Institute:

(1) API Standard 5A "API Specification for Casing, Tubing, and Drill Pipe" (1968, 1971, 1973 plus Supp.1).

(2) API Standard 6A "API Specification for Wellhead Equipment" (1968, 1974).

(3) API Standard 6D "API Specification for Pipeline Valves" (1968, 1974).

(4) API Standard 5L "API Specification for Line Pipe" (1967, 1970, 1971 plus Supp. 1, 1973 plus Supp. 1, 1975).

(5) API Standard 5LS "API Specification for Spiral-Weld Line Pipe" (1967, 1970, 1971 plus Supp. 1 1973 plus Supp. 1, 1975).

(6) API Standard 5LX "API Specification for High-Test Line Pipe" (1967, 1970, 1971 plus Supp. 1, 1973, plus Supp. 1, 1975).

(7) API Recommended Practice 5L1 "API Recommended Practice for Railroad Transportation of Line Pipe" (1967, 1972).

(8) API Standard 1104 "Standard for Welding Pipe Lines and Related Facilities" (1968, 1973).

B. The American Society for Testing and Materials:

(1) ASTM Specification A53 "Standard Specification for Welded and Seamless Steel Pipe" (A53-65, A53-68, A53-73).

(2) ASTM Specification A72 "Standard Specification for Welded Wrought-Iron Pipe" (A72-64T, A72-68).

(3) ASTM Specification A106 "Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service" (A106-66, A106-68, A106-72a).

(4) ASTM Specification A134 "Standard Specification for Electric Fusion (Arc)-Welded Steel Plate Pipe, Sizes 16 in. and over" (A134-64, A134-68, A134-73).

(5) ASTM Specification A135 "Standard Specification for Electric-Resistance-Welded Steel Pipe" (A135-63T, A135-68, A135-73a).

(6) ASTM Specification A139 "Standard Specification for Electric-Fusion (Arc)-Welded Steel Pipe (Sizes 4 in. and over)" (A139-64, A139-68, A139-73).

(7) ASTM Specification A155 "Standard Specification for Electric-Fusion-Welded Steel Pipe for High-Pressure Service" (A155-65, A155-68, A155-72a).

(8) ASTM Specification A211 "Standard Specification for Spiral-Welded Steel or Iron Pipe" (A211-63, A211-68, A211-73).

(9) ASTM Specification A333 "Standard Specification for Seamless and Welded Steel Pipe for Low Temperature Service" (A333-64, A333-67, A333-73).

(10) ASTM Specification A372 "Standard Specification for Carbon and Alloy Steel Forgings for Thin-Walled Pressure Vessel" (A372-67, A372-71).

(11) ASTM Specification A377 "Standard Specifications for Cast Iron and Ductile Iron Pressure Pipe" (A377-66, A377-73).

(12) ASTM Specification A381 "Standard Specification for Metal-Arc-Welded Steel Pipe for High-Pressure Transmission Systems" (A381-66, A381-68, A381-73).

(13) ASTM Specification A539 "Standard Specification for Electric Resistance-Welded Coiled Steel Tubing for Gas and Fuel Oil Lines" (A539-65, A539-73).

(14) ASTM Specification B42 "Standard Specification for Seamless Copper Pipe, Standard Sizes" (B42-62, B42-66, B42-72).

(15) ASTM Specification B68 "Standard Specification for Seamless Copper Tube, Bright Annealed" (B68-65, B68-68, B68-72).

(16) ASTM Specification B75 "Standard Specification for Seamless Copper Tube" (B75-65, B75-68, B75-73).

(17) ASTM Specification B88 "Standard Specification for Seamless Copper Water Tube" (B88-66, B88-72).

(18) ASTM Specification B251 "Standard Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube" (B251-66, B251-68, B251-72).

(19) ASTM Specification D2513 "Standard Specification for Thermoplastic Gas Pressure Pipe, Tubing and Fittings" (D2513-66T, D2513-68, D2513-70, D2513-71, D2513-73, D2513-74a).

(20) ASTM Specification D2517 "Standard Specification for Reinforced Epoxy Resin Gas Pressure Pipe and Fittings" (D2517-66T, D2517-67, D2517-73).

C. The American National Standards Institute, Inc.:

(1) ANSI A21.1 "Thickness Design of Cast-Iron Pipe" (A21.1-1967, A21.1-1972).

(2) ANSI A21.3 "Specifications for Cast Iron Pit Cast Pipe for Gas" (A21.3-1953).

(3) ANSI A21.7 "Cast-Iron Pipe Centrifugally Cast in Metal Molds for Gas" (A21.7-1962).

(4) ANSI A21.9 "Cast-Iron Pipe Centrifugally Cast in Sand-Lined Molds for Gas" (A21.9-1962).

(5) ANSI A21.11 "Rubber-Gasket Joints for Cast-Iron and Ductile-Iron Pressure Pipe and Fittings" (A21.11-1964, A21.11-1972).

(6) ANSI A21.50 Thickness Design for Ductile Iron Pipe" (A21.50-1965, A21.50-1971).

(7) ANSI A21.52 "Ductile-Iron Pipe, Centrifugally Cast, in Metal Molds or Sand-Lined Molds for Gas" (A21.52-1965, A21.52-1971).

(8) ANSI B16.1 "Cast Iron Pipe Flanges and Flanged Fittings" (B16.1-1967).

(9) ANSI B16.5 "Steel Pipe Flanges, Flanged Valves and Fittings" (B16.5-1968, B16.5-1968, B16.5-1973).

(10) ANSI B16.24 "Bronze Flanges and Flanged Fittings" (B16.24-1962, B16.10-1971).

(11) ANSI B36.10 "Wrought Steel and Wrought Iron Pipe" (B36.10-1959, B36.10-1970).

(12) ANSI C1 "National Electrical Code" (C1-1968, C1-1975).

D. The American Society of Mechanical Engineers:

(1) ASME Boiler and Pressure Vessel Code, Section VIII "Pressure Vessels, Division 1" (1968, 1974).

(2) ASME Boiler and Pressure Vessel Code Section IX "Welding Qualifications" (1968, 1974).

E. Manufacturer's Standardization Society of the Valve and Fittings Industry:

(1) MSP-25 "Standard Marking System for Valves, Fittings, Flanges, and Union" (1964).

(2) MSS SP-44 "Steel Pipe Line Flanges" (1955, 1972, 1975).

(3) MSS SP-52 "Cast Iron Pipe Line Valves" (1957).

(4) MSS SP-70 "Cast Iron Gate Valves, Flanged and Threaded Ends" (1970).

(5) MSS SP-71 "Cast Iron Swing Check Valves, Flanged and Threaded Ends" (1970).

(6) MSS SP-78 "Cast Iron Plug Valves" (1972).

F. National Fire Protection Association:

(1) NFPA Standard 30 "Flammable and Combustible Liquids Code" (1969, 1973).

(2) NFPA Standard 58 "Standard for the Storage and Handling of Liquefied Petroleum Gases" (1969, 1972).

(3) NFPA Standard 59 "Standard for the Storage and Handling of Liquefied Petroleum Gases at Utility Gas Plants" (1968).

(4) NFPA Standard 59A "Storage and Handling Liquefied Natural Gas" (1971, 1972).

Appendix B.I. is amended to read as follows:

APPENDIX B - QUALIFICATION OF PIPE

I. Listed Pipe Specifications. Numbers in parentheses indicate applicable editions. Only the latest listed edition applies, except that an earlier listed edition may be followed with respect to pipe or components which were manufactured, designed, or installed before July 1, 1976, unless otherwise provided in this Part.

API 5L--Steel and iron pipe (1967, 1970, 1971 plus Supp. 1, 1973 plus Supp. 1, 1975).

API 5LS--Steel pipe (1967, 1970, 1971 plus Supp. 1, 1973 plus Supp. 1, 1975).

API 5LX--Steel pipe (1967, 1970, 1971 plus Supp. 1, 1973 plus Supp. 1, 1975).

ASTM A53--Steel pipe (1965, 1968, 1973).

ASTM A72--Wrought Iron Pipe (1964T, 1968).

ASTM A106--Steel Pipe (1966, 1968, 1972a).

ASTM A134--Steel Pipe (1964, 1968, 1973).

ASTM A135--Steel Pipe (1963T, 1968, 1973a).

ASTM A139--Steel Pipe (1964, 1968, 1973).

ASTM A155--Steel Pipe (1965, 1968, 1972a).

ASTM A211--Steel and iron pipe (1963, 1968, 1973).

ASTM A333--Steel pipe (1964, 1967, 1973).

ASTM A377--Cast Iron Pipe (1966, 1973).

ASTM A381--Steel pipe (1966, 1968, 1973).

ASTM A539--Steel Tubing (1965, 1973).

ASTM B42--Copper pipe (1962, 1966, 1972).

ASTM B68--Copper tubing (1965, 1968, 1973).

ASTM B75--Copper tubing (1965, 1968, 1973).

ASTM B88--Copper tubing (1966, 1972).

ASTM B251--Copper pipe and tubing (1966, 1968, 1972).

ASTM D2513--Thermoplastic pipe and tubing (1966T, 1968, 1970, 1971, 1973, 1974a).

ASTM D2517--Thermosetting plastic pipe and tubing (1966T, 1967, 1973).

ANSI A21.3--Cast iron pipe (1953).

ANSI A21.7--Cast iron pipe (1962).

ANSI A21.9--Cast iron pipe (1962).

ANSI A21.52--Ductile iron pipe (1965, 1971).