Decision 93791 DEC - 1 1981

ORIGINAL

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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| In the Matter of the Application of CP NATIONAL CORPORATION, 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 112-D adopted June 5, 1979, in Decision No. 90372 in order to conform with the changes to the Minimum Federal Safety Standards issued by the Department of Transportation, Office of Pipeline Safety, Regulation, Materials Transportation Bureau, as more particularly set forth in the Application herein. | Application 60469 (Filed April 21, 1981) |

## O P I N I O N

This application was filed under Section 142.1 of General Order 112-D.[1] Applicants request an order modifying General Order 112-D to:

1. Amend Section 141.2,
2. Amend Section 192.121,
3. Amend Subsection 192.281(a),

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1/ Section 142.1 of General Order 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."

4. Add Section 192.283,
5. Add Section 192.285,
6. Add Section 192.287,
7. Amend Subsection 192.455(a) and add Subsection 192.455(f),
8. Amend Subsection 192.465(a), and to
9. Amend Subsection 192.711(b),

in order to update the General Order and make it conform to changes in Part 192 of Title 49 of the Code of Federal Regulations (49 CFR Part 192) - Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards - issued by the Office of Pipeline Safety Regulation, Material Transportation Bureau (MTB), Department of Transportation.

The federal regulations were amended by the MTB to: (1) establish a single design factor for all plastic pipe; (2) require the qualification of more specific test procedures for joining of plastic pipe; (3) require qualification of persons required to make plastic joints; (4) provide more detailed requirements for the inspection of joints made on plastic pipe; (5) permit the use of electrically isolated metal alloy fittings in plastic pipelines; (6) change the cathodic protection monitoring requirements for short sections of transmission lines; and (7) correct a reference to a section that has been redesignated.

In addition, applicants propose a revision to the dollar value threshold of reporting requirements for transmission pipeline construction projects.

Section 141.2 Proposed installation

This section prescribes the requirements for reporting to the Commission the construction of a new pipeline, or the reconstruction or reconditioning of an existing pipeline, to be operated at hoop stresses of 20% or more of the specified minimum yield strength (SMYS) and estimated to cost $250,000 or more. Applicants state

that the $250,000 reporting threshold has become burdensome and costly to the utilities due to the effects of inflation on the cost of these installations and should be revised to $750,000.

In support of their request, applicants indicate that the $250,000 requirement was established upon the adoption of General Order 112-C by Decision 78513, dated April 2, 1971. Since 1971, inflation in labor and materials has increased the cost of pipeline projects in excess of 142%. Applicants believe a threshold of $750,000 is more appropriate for projects to approximate those required to be reported in 1971. They assume that these costs will continue to escalate in the near future and there is no demonstrated need to include projects of smaller scope. Adoption of this figure would reduce the reporting burden for the utilities and also for the Commission.

When an installation cost of $250,000 was adopted as the basis for reporting in General Order 112-C, it was intended that the Commission and the Gas Branch be kept informed of the utilities' operations. Again, when the Commission adopted General Order 112-D by Decision 90372, dated June 5, 1979, to incorporate regulations for liquefied natural gas (LNG) facilities, new construction work and/or modification of existing LNG facilities estimated to cost $100,000 or more were adopted as one of the requirements for filing with the Commission. This was done with the same intent as for facilities covered under Part II of the General Order.

In recent years, the filings in compliance with Section 141.2 have averaged about 12 per year. Since there has not been any significant increase in filings, the $250,000 reporting basis has not become burdensome to either the utilities or the Commission's Gas Branch. Therefore, the $250,000 basis for reporting will remain unchanged.

Section 192.121 Design of plastic pipe

Applicants request to amend this section to conform with the federal regulations to allow for a single design factor of 0.32 for all class locations instead of the present factors of 0.32 for Class 1 locations, 0.25 for Class 2 and 3 locations, and 0.20 for Class 4 locations. This will allow the use of same wall thickness pipe for all four class locations.

MTB amended this section on April 3, 1978. On September 6, 1978, applicants filed Application 58340 requesting an order modifying General Order 112-C to conform to changes in the federal safety standards. By Decision 90921, October 23, 1979, the Commission rejected adoption of the use of a single design factor because thinner wall pipe could cause problems in saddle fusion of side taps and service tees and in making butt fusion joints. Due to these reasons the Commission retained the present design requirement because the variable factor based on class location is more stringent and provides a safer design.

Since then, more data and information were provided to the Gas Branch, and a demonstration of plastic fusion joinings was presented to show that the problem could be eliminated by following proper procedures in making fusion joints. In addition, applicants propose, for inclusion in the General Order, an amended Subsection 192.281(a) and new Sections 192.283, 192.285, and 192.287, which incorporate more stringent requirements and procedures for joining plastic pipe. These changes specifically address the concerns previously expressed by the Gas Branch in Decision 90921.

In view of the new and improved joining procedures, the single design factor of 0.32 would be satisfactory and can now be adopted for all class locations.

Subsection 192.281(a) Plastic pipe
Section 192.283 Plastic pipe; qualifying joining procedures
Section 192.285 Plastic pipe; qualifying persons to make joints
Section 192.287 Plastic pipe; inspection of joints

Applicants seek to amend Subsection 192.281(a) and to add new Sections 192.283, 192.285, and 192.287 to conform with the current federal regulations. MTB incorporated these amendments[2/] to establish tests for qualifying procedures and personnel to make all types of joints in plastic pipelines including heat fusion, solvent cement, adhesive, and mechanical joints. These new requirements are intended to minimize the possibility of joints coming apart and causing gas pipeline failures.

In Section 192.283, applicants propose an added provision, Subsection 192.283(a)(4), which provides that joining procedures require a demonstration that saddle connections to pressurized thermoplastic pipe can be made safely. This provision requires a demonstration that the connection can be made with the main pressurized without rupture. This provides for the safety of the person making the connection.

Applicants' proposal and the amended federal regulations will enhance employees and public safety and should be adopted.

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2/ All four sections were adopted July 23, 1979 (Federal Register, Volume 44, No. 142, pages 42968-42973). Sections 192.283 and 192.285 were amended on February 14, 1980 (Federal Register, Volume 45, No. 32, pages 9931-9935) and on January 2, 1981 (Federal Register, Volume 46, No. 1, page 39).

Section 192.455 External corrosion control: buried or submerged pipeline installed after July 31, 1971

Applicants seek to add Subsection 192.455(f) to conform with the current federal regulations. MTB has amended this section to permit the use of electrically isolated metal alloy fittings in plastic pipeline without the need for cathodic protection or periodic tests, provided the fittings meet certain specific requirements (Federal Register, Volume 42, No. 137, pages 35653-35654, July 11, 1977).

This same petition was made in Application 55782 filed December 30, 1977. By Decision 89182, dated August 18, 1978, the Commission rejected the request since its adoption would have anticipated the results from the examination specified in Resolution G-1967. This resolution, effective December 9, 1976, granted Pacific Gas and Electric Company (PG&E) a deviation to allow use of plastic pipe connectors made of Type 316 nonsensitized stainless steel without coating or cathodic protection for sizes up to 2 inches in diameter and operating at pressures up to 60 pounds per square inch gauge. It also stipulated that PG&E will examine for corrosion representative samples of connectors then in operation, three years after the effective date (December 9, 1976) of the resolution, and report to the Commission the results of such examination.

In compliance with Resolution G-1967 PG&E has examined for corrosion 338 samples of Type 316 nonsensitized stainless steel connectors and has not found any evidence of corrosion on them. On June 4, 1980, PG&E submitted a report to the Commission of its examination of the connectors. The Commission is satisfied with the examination results and will adopt Subsection 192.455(f).

Subsection 192.465(a) External corrosion control - monitoring

Applicants seek to amend Subsection 192.465(a) to conform with the current federal regulations. MTB has amended this subsection to establish the monitoring requirements for testing short sections of transmission lines on a sampling basis to determine the effectiveness of cathodic protection in controlling corrosion. (Federal Register, Volume 44, No. 246, pages 75384-75385, December 20, 1979, and amended Federal Register, Volume 45, No. 68, page 23441, April 7, 1980.) Applicants point out that technical requirements for monitoring short sections of transmission lines should not be different from those for short sections of distribution lines since cathodic protection is at least as effective on both transmission and distribution lines. However, applicants further state that because transmission lines are usually located away from populated areas, the annual monitoring of all short sections of transmission lines is not warranted on a public safety basis. In fact, this change would result in some savings to the utilities without reducing safety. Therefore, this amendment should be adopted.

Section 192.711 Transmission lines: general requirements for repair procedures

MTB has amended this section to correct a reference to another section which has been redesignated. (Federal Register, Volume 45, No. 12, page 3272, January 17, 1980.) Subsection 192.711(b) refers to Subsection 192.717(c) which has been redesignated as Subsection 192.717(a)(3). This correction was incorporated earlier in General Order 112-D. Therefore, no further action is needed.

Subsection 192.179(c) Transmission line valves

A printing error in this subsection was found by the Gas Branch and should be corrected to read as follows:

> (c) Each section of a transmission line, other than offshore segments, between main line valves must have a blowdown valve with enough capacity to allow the transmission line to be blown down as rapidly as practicable. Each blowdown discharge must be located so the gas can /line/ be blown to the atmosphere without hazard and, if the transmission line is adjacent to an overhead electric line, so that the gas is directed away from the electrical conductors. (Underlined word represents insertion and the word in bracket represents deletion.)

Findings of Fact

1. It is in the interest of the gas customers and gas corporations and will promote public safety in California for General Order 112-D to be revised to add Sections 192.283, 192.285, and 192.287, and to amend Sections 192.121, 192.281, 192.455, and 192.465, and a portion of Appendix A to conform with the changes to the minimum Federal Safety Standards issued by the U.S. Department of Transportation's Materials Transportation Bureau. The above additions and amendments are set forth in the appendix to this decision.

2. The proposed amendment to Section 141.2 changing the reporting basis to $750,000 from $250,000 estimated cost for construction of a new pipeline, or the reconstruction or reconditioning of an existing pipeline designed to operate at 20% specified minimum yield strength or more, is not in the public interest and should be rejected for the reasons cited by the Gas Branch, supra, i.e. that the present rule is more stringent and does not cause any unreasonable reporting burden for applicants and the Commission

3. The proposed addition of Subsection 192.283(a)(4) will require the joining procedures to demonstrate that saddle connections to pressurized thermoplastic pipe can be made safely.

4. The proposed amendment to Section 192.711 to correct a reference to another section was incorporated in General Order 112-D earlier and needs no further action.

5. The proposed correction of a printing error in Section 192.179 is reasonable and should be adopted.

6. A public hearing is not necessary.

Conclusion of Law

The application should be granted except that the proposed revision in reporting requirements for pipeline construction should be denied.

## O R D E R

IT IS ORDERED that:

1. General Order 112-D is revised to (1) add Sections 192.283, 192.285, and 192.287, and (2) amend Sections 192.121, 192.281, 192.455, and 192.465 and Appendix A. These changes will conform the General Order to the minimum Federal Safety Standards issued by the Materials Transportation Bureau. The changes are shown in the appendix to this decision.

2. Section 192.179 is corrected as shown in the appendix to this decision.

3. Subsection 192.283(a)(4) is added as shown in the appendix to this decision.

4. The request to amend Section 141.2 is denied.

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

This order becomes effective 30 days from today.

Dated DEC - 1 1981, at San Francisco, California.

JOHN E. BRYSON
President
RICHARD D. GRAVELLE
LEONARD M. GRIMES, JR.
VICTOR CALVO
PRISCILLA C. GREW
Commissioners

I CERTIFY THAT THIS DECISION WAS APPROVED BY THE ABOVE COMMISSIONERS TODAY.

Joseph E. Bodovitz, Executive Director

APPENDIX


Section 192.121, Design of plastic pipe, is amended to read as follows:

Section 192.121, Design of plastic pipe

The design pressure for plastic pipe is determined in accordance with the following formula, subject to the limitations of Section 192.123:

$$P = 2S \left[t/(D-t)\right] \times 0.32$$

P = Design pressure, gage, kPa (psi).

S = For thermoplastic pipe the long-term hydrostatic strength determined in accordance with the listed specification at a temperature equal to 23°C (73°F), 38°C (100°F), 49°C (120°F), or 60°C (140°F); for reinforced thermosetting plastic pipe, 75,800 kPa (11,000 psi).

t = Specified wall thickness, mm (in.).

D = Specified outside diameter, mm (in.).

Subsection 192.179(c) is corrected in Section 192.179, Transmission line valves, to read as follows:

Section 192.179, Transmission line valves

* * * * *

(c) Each section of a transmission line, other than offshore segments, between main line valves must have a blowdown valve with enough capacity to allow the transmission line to be blown down as rapidly as practicable. Each blowdown discharge must be located so the gas can be blown to the atmosphere without hazard and, if the transmission line is adjacent to an overhead electric line, so that the gas is directed away from the electrical conductors.

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Section 192.281, Plastic pipe, is amended to read as follows:

Subsection 192.281, Plastic pipe

(a) A plastic pipe joint that is joined by solvent cement, adhesive, or heat fusion may not be disturbed until it has properly set. Plastic pipe may not be joined by a threaded joint or miter joint.

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Section 192.283, Plastic pipe; qualifying joining procedures, is added to read as follows:

Section 192.283, Plastic pipe; qualifying joining procedures.

(a) Heat Fusion, Solvent Cement, and Adhesive Joints. Before any written procedure established under Section 192.273(b) is used for making plastic pipe joints by heat fusion, solvent cement, or adhesive method, the procedure must be qualified by subjecting specimen joints made according to the procedure to the following tests:

(1) The burst test requirements of --

(i) In the case of thermoplastic pipe, Paragraph 8.6 (Sustained Pressure Test) or Paragraph 8.7 (Minimum Hydrostatic Burst Pressure) of ASTM D2513; or

(ii) In the case of thermosetting plastic pipe, Paragraph 8.5 (Minimum Hydrostatic Burst Pressure) or Paragraph 8.9 (Sustained Static Pressure Test) of ASTM D2517;

(2) For procedures intended for lateral pipe connections, subject a specimen joint made from pipe sections joined at right angles according to the procedure to a force on the lateral pipe until failure occurs in the specimen. If failure initiates outside the joint area, the procedure qualifies for use; and

(3) For procedures intended for nonlateral pipe connections, follow the tensile test requirements of ASTM D638, except that the test may be conducted at ambient temperature and humidity. If the specimen elongates no less than 25 percent or failure initiates outside the joint area, the procedure qualifies for use.

(4) For saddle connections to pressurized thermoplastic pipe, the joining procedure must be tested to demonstrate that the joint can be made safely at the operating pressure in the pipe.

(b) Mechanical Joints. Before any written procedure established under Section 192.273(b) is used for making mechanical plastic pipe joints that are designed to withstand tensile forces, the procedure must be qualified by subjecting 5 specimen joints made according to the procedure to the following tensile test:

(1) Use an apparatus for the test as specified in ASTM D638-77a (except for conditioning).

(2) The specimen must be of such length that the distance between the grips of the apparatus and the end of the stiffener does not affect the joint strength.

(3) The speed of testing is 5.0 mm (0.20 in.) per minute, plus or minus 25 percent.

(4) Pipe specimens less than 102 mm (4 in.) in diameter are qualified if the pipe yields to an elongation of no less than 25 percent or failure initiates outside the joint area.

(5) Pipe specimens 102 mm (4 inches) and larger in diameter shall be pulled until the pipe is subjected to a tensile stress equal to or greater than the maximum thermal stress that would be produced by a temperature change of 55.6°C (100°F) or until the pipe is pulled from the fitting. If the pipe pulls from the fitting, the lowest value of the five test results or the manufacturer's rating, whichever is lower, must be used in the design calculations for stress.

(6) Each specimen that fails at the grips must be retested using new pipe.

(7) Results obtained pertain only to the specific outside diameter, and material of the pipe tested, except that testing of a heavier wall pipe may be used to qualify pipe of the same material but with a lesser wall thickness.

(c) A copy of each written procedure being used for joining plastic pipe must be available to the persons making and inspecting joints.

(d) Pipe or fittings manufactured before July 1, 1980, may be used in accordance with procedures that the manufactuter certifies will produce a joint as strong as the pipe.

Section 192.285, Plastic pipe; qualifying persons to make joints, is added to read as follows:

Section 192.285, Plastic pipe; qualifying persons to make joints.

(a) No person may make a plastic pipe joint unless that person has been qualified under the applicable joining procedure by --

(1) Appropriate training or experience in the use of the procedure; and

(2) Making a specimen joint from pipe sections joined according to the procedure that passes the inspection and test set forth in paragraph (b) of this section.

(b) The specimen joint must be --

(1) Visually examined during and after assembly or joining and found to have the same appearance as a joint or photographs of a joint that is acceptable under the procedure; and

(2) In the case of a heat fusion, solvent cement, or adhesive joint:

(i) Tested under any one of the test methods listed under Section 192.283(a) applicable to the type of joint and material being tested;

(ii) Examined by ultrasonic inspection and found not to contain flaws that would cause failure; or

(iii) Cut into at least 3 longitudinal straps, each of which is --

(A) Visually examined and found not to contain voids or discontinuities on the cut surfaces of the joint area; and

(B) Deformed by bending, torque, or impact, and if failure occurs, it must not initiate in the joint area.

(c) A person must be requalified under an applicable procedure, if during any 12-month period that person --

(1) Does not make any joints under that procedure; or

(2) Has 3 joints or 3 percent of the joints made, whichever is greater, under that procedure that are found unacceptable by testing under Section 192.513.

(d) Each operator shall establish a method to determine that each person making joints in plastic pipelines in his system is qualified in accordance with this section.

Section 192.287, Plastic pipe; inspection of joints, is added to read as follows:

Section 192.287, Plastic pipe; inspection of joints.

No person may carry out the inspection of joints in plastic pipes required by Sections 192.273(c) and 192.285(b) unless that person has been qualified by appropriate training or experience in evaluating the acceptability of plastic pipe joints made under the applicable joining procedure.

Subsection 192.455(a) is amended and a new Subsection 192.455(f) is added to Section 192.455, External corrosion control: buried or submerged pipelines installed after July 31, 1971, to read as follows:

Section 192.455, External corrosion control: buried or submerged pipelines installed after July 31, 1971.

(a) Except as provided in Paragraphs (b), (c), and (f) of this section each buried or submerged pipeline installed after July 31, 1971 must be protected against external corrosion, including the following:

* * * * *

(f) This section does not apply to electrically isolated metal alloy fittings in plastic pipelines if --

(1) For the size fitting to be used, an operator can show by tests, investigation, or experience in the area of application that adequate corrosion control is provided by alloyage;

(2) The fitting is designed to prevent leakage caused by localized corrosion pitting; and

(3) A means is provided for identifying the location of the fitting.

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

Section 192.465, External corrosion control: monitoring.

(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 Section 192.463. However, if tests at those intervals are impractical for separately protected short sections of mains or transmission lines, not in excess of 100 feet, or separately protected service lines, these pipelines 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.

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Section II.B of Part II, Appendix A, Materials Incorporated by Reference, is amended to read as follows:

PART II
APPENDIX A
Materials Incorporated by Reference
Section II.B

* * * * *

(19) ASTM Specification D638 "Standard Test Method for Tensile Properties of Plastic" (D638-77a).

(20) 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).

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

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(END OF APPENDIX)