

U.S. Department of Transportation
Research and Special Programs Administration
400 Seventh Street, S.W
Washington, D C 20590

MAY - 5 202

Robert F. Smallcomb, Jr.
Director, Pipeline Engineering and Safety Division
Massachusetts Department of Telecommunications & Energy
One South Station
Boston, MA 02110

Dear Mr. Smallcomb:

We have considered your letter of April 3, 2000, notifying us that the Massachusetts Department of Telecommunications & Energy has granted the Boston Gas Company a waiver from compliance with 49 CFR 192.321(a) for plastic pipe across Bridge No. A-7-7 on Clinton Street in Amesbury. The waiver will permit the installation of about 75 feet of 6-inch plastic pipe above ground inside an 8-inch coated and welded steel casing across the bridge. The steel-encased plastic pipe will be protected against mechanical damage and ultraviolet radiation, and meet all stress limits applicable to plastic pipe.

We have no objection to the waiver. The circumstances are comparable to those of previous waivers we have approved permitting the installation of plastic pipe above ground on bridges.

Sincerely,
Richard B. Felder
Associate Administrator for Pipeline Safety

U.S. Department of Transportation
Research and Special Programs Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

Mr. Robert F. Smallcomb, Jr.
Director, Pipeline Engineering and Safety Division
Massachusetts Department of Telecommunications & Energy One South Station
Boston, MA 02110

Dear Mr. Smallcomb:

We have considered your letter of December 19, 2000, notifying us that the Massachusetts Department of Telecommunications & Energy has granted the Boston Gas Company a waiver from compliance with 49 CFR 192.321(a) for plastic pipe across bridge No. B- I 6-164 on Babson Street in Dorchester. The waiver will permit the installation of about 128 feet of 8-inch plastic pipe above ground inside a 12-inch coated and welded steel casing across the bridge. The steel- encased plastic pipe will be protected against mechanical damage and ultraviolet radiation and meet all stress limits applicable to plastic pipe.

We have no objection to the waiver. The circumstances are comparable to those of previous waivers we have approved permitting the installation of plastic pipe above ground on bridges.

Sincerely,
Stacey Gerard

MASSACHUSETTS

WAIVER REQUEST (EASTERN REGION)

TO: JAMES REYNOLDS

FROM: SG via JOHN HESS

RECEIVED THIS WAIVER REQUEST
12/28/00 FROM MA. FORWARDING TO YOU FOR ACTION.

Their letter indicates a 60-day window for our review and concurrence/disapproval.
This indicates a due date back for signature of February 9, 2001.

Please advise who will sign our response and if the indicated due date is not correct.
Thanks. John Hess 64576

COMMONWEALTH OF MASSACHUSETTS
OFFICE OF CONSUMER AFFAIRS AND BUSINESS REGULATION

DEPARTMENT OF
TELECOMMUNICATIONS & ENERGY
ONE SOUTH STATION
BOSTON, MA 02110

December 19, 2000

Ms. Stacey Gerard
Associate Administrator for Pipeline Safety (DPS-1)
Research and Special Programs Administration
Department of Transportation
400 Seventh Street, SW.
Washington, D.C. 20590

RE: Waiver of Pipeline Safety Regulations

Dear Ms. Gerard:

Being a certified agent under section 60105, Public Law 103-272, the Massachusetts Department of Telecommunications and Energy has approved a waiver to Keyspan/Boston Gas Company from the requirements of Title 49 C.F.R. Part 192, § 192.321(a). The waiver allows Keyspan/Boston Gas to install an 8" nominal diameter, SDR 13.5, PE 2406 plastic carrier pipe into a new 12" nominal diameter, coated, welded steel casing. Approximately 128 feet of the plastic piping will not meet the burial requirements of § 192.321(a). The installation site is in Dorchester, Massachusetts.

As required by section 60118(d), Public law 103-272, I am forwarding a copy of the waiver to your office with the understanding that the waiver will be effective within 60 days of notification unless the Secretary objects to the waiver in writing before the effective date. Thank you for your support in this matter.

Very truly yours,
Robert R. Smallcomb, Jr.
Director, Pipeline Engineering and Safety Division

The Commonwealth of Massachusetts
Department of Telecommunications and Energy

December 15, 2000

D.T.E. 00-29-G

Application of Keyspan/Boston Gas for approval by the Department of Telecommunications and Energy for a waiver from the requirements in 49 C.F.R. Part 192, for underground installation of plastic pipe for a bridge' crossing to be located in the Dorchester, Massachusetts.

I. BACKGROUND

On November 14, 2000, Keyspan/Boston Gas Company ("Keyspan"), an intrastate natural gas distribution company that operates in Massachusetts, requested that the Department of Telecommunications and Energy ("Department") grant a waiver of the underground installation requirements for plastic pipe contained in 49 C.F.R. Part 192 ("Part 192"). Keyspan seeks to install 128 feet of plastic main inside a steel casing across a bridge located on Babson Street, Dochester. The bridge, which spans the MBTA tracks, is being rebuilt by the Massachusetts Highway Department.

II. REGULATORY REQUIREMENTS

The minimum federal safety standards for transportation of natural gas by pipeline are contained in Part 192. Specifically § 192.321(a) states:

"(a) Plastic pipe must be installed below ground level."

Any waiver of any of the provisions of Part 192, granted by the Department, is subject to the approval of the Secretary of Transportation's Office of Pipeline Safety ("OPS"). The Massachusetts Pipeline Safety Code ("220 C.M.R. 101") and Public Law 103-272, formerly the Natural Gas Pipeline Safety Act, require the Department to give OPS notice of any waiver at least 60 days before it becomes effective. The Department regulations at 220 C.M.R. 101.02(2) state:

"The D.T.E. may issue a waiver to a gas corporation or municipal gas department from the provisions of Part 192 in Title 49 of the Federal regulations providing that the waiver pertains to an intrastate facility and the D.T.E. gives notice to the Department of Transportation at least 60 days before the waiver becomes effective."

Public Law 103-272 states in § 60118 Compliance and Waivers:

"(d) Waivers by State Authorities. If a certification under section 60105 of this title...is in effect, the state authority may waive compliance with a safety standard to which the certification...applies in the same way and to the same extent the Secretary may waive compliance However, the authority must give the Secretary written notice of the waiver at least 60 days before its effective date. If the Secretary makes a written objection before the effective date of the waiver, the waiver is stayed . . . "

III. ANALYSIS AND FINDINGS

The proposed eight-inch nominal diameter plastic pipe is to be permanently installed in an 12-inch nominal diameter, coated, welded steel casing installed in a utility bay underneath the bridge. The plastic pipe, sheathed within the casing, will not be exposed to ultraviolet radiation.

Since 1979, many similar waivers have been granted by states and approved by OPS. OPS has approved dozens of similar waivers to operators in Massachusetts. All of these pipelines have operated satisfactorily.

There are advantages to the use of encased plastic pipe at this bridge crossing. First, plastic pipe is not prone to corrosion, and therefore will require less maintenance than a steel pipeline. Second, a steel-encased plastic pipe is less susceptible to damage from vandalism, airborne objects and external loading.

In the expected ambient temperature range, the forces acting on the plastic pipe due to expansion and contraction are well within acceptable limits. The tensile stress due to temperature variation is 675 pounds per square inch gauge ("p.s.i.") which is well below the allowable limit of 2,250 p.s.i. [75% of the specified minimum yield strength ("SMYS") which is 3,000 p.s.i.]. The stresses due to pressure and bending, including the combined stresses are also well below the allowable limits established in the A.S.M.E. B31.8 which is incorporated into Part 192 by reference.

In addition, the following factors support Keyspan's application. Casing spacers will be placed on the plastic pipe at intervals no greater than eight feet. These will support the carrier pipe and allow for movement due to expansion and contraction. The steel casing shall continue approximately 12 feet beyond each abutment. The plastic pipe will be joined by butt fusion, requiring no fittings over the encased portion of the main. The pipe will be tested to 90 p.s.i. Its maximum operating pressure will be 0.5 p.s.i.. Isolation valves will be installed on the approaches to each side of the bridge in accordance with 220 C.M.R. 101.06(10) (a)6.

IV. ORDER

Accordingly, after due consideration, it is:

ORDERED: Keyspan/Boston Gas Company is hereby exempted from the underground installation requirement in 49 C.F.R. Part 192 for plastic pipe to be installed on the bridge on Babson Street, Dorchester. The foregoing waiver is granted with an effective date of February 15, 2001, provided that the Secretary of Transportation or his designee does

not object to the waiver prior to the effective date.

By Order of the Department,
James Connelly, Chairman
W. Robert Keating, Commissioner
Paul B. Vasington, Commissioner
Eugene J. Sullivan, Jr., Commissioner
Deirdre K. Manning, Commissioner

Appeal as to matters of law from any final decision, order or ruling of the Commission may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the Order of the Commission be modified or set aside in whole or in part.

Such petition for appeal shall be filed with the Secretary of the Commission within twenty days after the date of service of the decision, order or ruling of the Commission, or within such further time as the Commission may allow upon request filed prior to the expiration of twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court, sitting in Suffolk County by filing a copy thereof with the Clerk of said Court. (Sec. 5, Chapter 25, G.L. Ter. Ed., as most recently amended by Chapter 485 of the Acts of 1971).

Bostongas
201 Rivermoor Street
West Roxbury, Massachusetts 02132

Mr. Robert F. Smallcomb
Director, Pipeline Engineering and Safety Division
Massachusetts Department of Telecommunications and Energy
100 Cambridge Street
Boston, MA 02202

October 31, 2000

RE: Petition for a Waiver to Install Plastic Pipe Across Bridge No. B-16-164, Babson St., Dorchester, M.A.

Dear Mr. Smallcomb:

In accordance with 220 CMR 101.02: Application for Exceptions and Waivers from Provisions of the D. T. E. Regulation, Boston Gas Company (the "Company") hereby petitions the Massachusetts Department of Telecommunications and Energy (the "Department") for a waiver from the provision of 49 CFR 192321, Installation of Plastic Pipe, paragraph (a). Paragraph (a) requires that plastic pipe must be installed below ground level.

The Company proposes to install approximately 124 feet of 8-inch nominal diameter, SDR 13.5, PE 2406, plastic pipe above ground level across the above-captioned bridge. The bridge spans Amtrak and MBTA railroad tracks. The pipeline will be a new main that will be inserted in a new casing across a new bridge.

The pipeline will be joined by heat fusion and inserted in a 12-inch nominal diameter, coated, welded, steel casing. The 8-inch diameter pipeline will be tested in accordance with Massachusetts and federal regulations so that it may be operated at 0.5 psig.

The specifications for the plastic pipe appear as Table 1 and Table 2 in Exhibit A; and the specifications for the casing appear as Table 1 in Exhibit B. The design of the pipeline installation across the bridge, including, but not limited to, the carrier pipe and casing supports, the number of supports, the distance between supports, and the means for maintaining a separation between the plastic pipe and the metallic casing appears in Exhibit C. In accordance with 220 CMR 101.06(10)(a) 6, an 8-inch, plastic valve will be located on each side of the bridge, at the approximate distances shown in Exhibit C.

The stress on the plastic pipe will not exceed the pipe's yield strength of 3,000 psig presented in Exhibit A, Table 1 because the anticipated temperature that the pipe will experience after installation is not less than -20°F , nor greater than 100°F . The anticipated temperature of the plastic pipe at the time of its installation will be between 45°F and 65°F .

The plastic pipe will not be exposed to excessive thermal stresses, the deteriorating affects of ultraviolet light from the sun, or mechanical damage under normal operating conditions. Consequently, the Company believes that there is no safety hazard associated with the installation of the plastic pipe above ground level across the bridge, as described herein.

If you have any questions or require additional information to be submitted regarding this petition, please contact Tony LaRusso, the project engineer, at (617) 723-5512, Ext. 4451. A check for the amount of \$100 has been included with this submittal for the filing fee required by the Department.

Sincerely,
L. Fleck
Vice President
Engineering & Environmental Management

EXHIBIT A
Plastic Pipe Specifications

TABLE 1
Physical Property Data For UAC 2000 Polyethylene Pipe

PE 2406

<u>Property</u>	<u>Nominal Value</u>
Melt Index	0.2 g/10 min
Density	0.943 g/cc
Thermal Expansion	9×10^{-5} in/in/°F
Yield Strength	3,000 psi
Flexular Modulus	100,000 psi
Thermal Conductivity	1.8 Btu/hr/sq ft/°F/in
Hydrostatic Design Basis @73°F	1,250 psi
Deflection Temperature @ 68 psi	140°F
Vicat Softening Point	248°F
Brittleness Temperature	<-180°F
Hardness, shore D	64
Flammability	1 in/min
Ultimate Elongation	>800%

TABLE 2

Plastic Pipe Data – PE 2406

Nominal Pipe Size (inches)	Standard Dimension Ratio (SDR) ¹	Average Outside Diameter (inches)	Average Inside Diameter (Inches)	Minimum Wall Thickness (Inches)	Design Pressure Rating @ 100°F (psi)
2	11.0	2.375	1.917	0.216	80
3	11.5	3.500	2.856	0.301	76
4	11.5	4.500	3.672	0.391	76
6	11.5	6.625	5.403	0.576	76
8	13.5	8.625	7.270	0.639	64
12	13.5	12.750	10.749	0.945	64

¹ SDR, Standard Dimension Ratio, is calculated by dividing the average outside diameter of the pipe by the minimum wall thickness as described in ASTM D2513.

EXHIBIT B
Casing Specifications

TABLE 1

Specifications for Casing Pipe
TYPE OF PIPE: API 5L, Grade B

Property, Dimension, or Specification

Nominal Pipe Size:	8 in.
Outside Diameter:	8.625 in.
Inside Diameter	8.125 in.
Wall Thickness:	0.250 in.
Schedule Number	20
Weight per foot:	22.36 lb
Coating:	Pritec high molecular polyethylene outer coating with butyl rubber adhesive

EXHIBIT C
Installation Design
Drawing No. P-135

Bostongas
201 Rivermoor Street
West Roxbury, Massachusetts 02132

Mr. Robert F. Smallcomb
Director, Pipeline Engineering and Safety Division
Massachusetts Department of Telecommunications and Energy
Leverett Saltonstall Building
100 Cambridge Street
Boston, MA 02202

October 31, 2000

RE: Request for Approval-Bridge Crossing Over Amtrak and META, Bridge No. B-16-164, Babson Street, Dorchester.

Dear Mr. Smallcomb:

The Massachusetts Highway Department (M D) is planning the reconstruction of the above bridge in Dorchester, Massachusetts. As part of the bridge reconstruction, Boston Gas Company is planning to replace the existing low-pressure 6" steel gas main with a new low-pressure 8" plastic gas main inside a 12" steel casing. The casing pipe will be coated with UV resistant Pritec (0.075 inches thick). Boston Gas is requesting approval for this new 8" gas main.

In accordance with CMR 220, § 101.06 (10), I am providing the following information regarding the new main:

1. The nominal pipe diameter of the carrier pipe is 8 inches, with a wall thickness of 0.639 inches. The Specified Minimum Yield Strength (SMYS) is 3,000psi.
2. The maximum operating pressure of the new main is 0.5 psig and the test pressure is 90 psig.
3. As stated in CMR 220, § 101.06 (10), the hoop stress is required for nominal pipe diameters of 12 inches or greater. This request for approval is for an 8-inch diameter pipe, which does not apply.
4. Due to the short length of the new main, approximately 154 feet within the casing, it is not necessary in this case to provide for expansion or contraction. The minor thermal movements can be absorbed in the pipe and soil behind the bridge abutments.
5. The casing pipe supports shall be in accordance with the Boston Gas Company standard detail for pipe support on bridges (shown on enclosed drawings). There will be a total number of 23 supports on the bridge spaced between 4 feet — 6 inches and 6 feet apart as shown on the enclosed Boston Gas Plan, Drawing No. P-135. The plastic carrier pipe shall be supported within the casing pipe by 22 casing insulators spaced a maximum of 8 feet apart as shown on Drawing P-135
6. The approximate location of valves on each side of the bridge is shown on the enclosed plan.

The layout of the abutments and support beams as indicated on the attached plan were obtained from a set of construction plans developed by the MHD.

Please call me at (617) 723-5512 ext. 4451 if you have any questions. Thank you.

Sincerely,
Tony LaRusso Project Engineer