

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

MAY 17 2002

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 October 30, 2001, notifying us that the Massachusetts Department of Telecommunications & Energy has granted the Keyspan Energy Delivery company a waiver from compliance with 49 CFR 192.321(a) for plastic pipe across a bridge on Hetrick Road in Newton. The waiver will permit the installation of about 37 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 L. Gerard
Associate Administrator for Pipeline Safety

COMMONWEALTH OF MASSACHUSETTS
OFFICE OF CONSUMER AFFAIRS AND BUSINESS REGULATION
Department of Telecommunications & Energy
One South Station
Boston, MA 02110

October 30, 2001

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 Energy Delivery from the requirements of Title 49 C.F.R. Part 192, § 192.321(a). The waiver allows Keyspan Energy Delivery to install an eight inch nominal diameter, SDR 13.5, PE 2406 plastic carrier pipe into a new 12 inch nominal diameter, coated, welded steel casing. Approximately 37 feet of the plastic piping will not meet the burial requirements of § 192.321(a). The installation site is in Newton, Massachusetts.

As required by section 60118(d), Public law 103-272, 1 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 F. Smallcomb, Jr.
Director, Pipeline Engineering and Safety Division

The Commonwealth of Massachusetts
Department of Telecommunications and Energy

October 29, 2001

D.T.E. 01-51-D

Application of Keyspan Energy Delivery 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 Newton, Massachusetts.

APPEARANCE: Steven A. Vitale, Vice President
201 Rivermoor Street
West Roxbury, MA 02132

FOR: KEYSpan ENERGY DELIVERY
Petitioner

I. BACKGROUND

On September 24, 2001, Boston Gas Company, an intrastate natural gas distribution company that operates in Massachusetts, doing business as Keyspan Energy Delivery ("Keyspan"), 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 37 feet of plastic main inside a steel casing across a bridge located on Herrick Road, Newton. The bridge spans the Massachusetts Bay Transportation Authority's Green Line tracks.

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: "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 [Department] 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 [Department] gives notice to the Department of Transportation at least 60 days before the waiver becomes effective.

In addition, 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. The casing will be located in a utility bay underneath the bridge. The plastic pipe, sheathed within the casing, will not be exposed to ultraviolet radiation.

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 765 pounds per square inch gauge ("p.s.i.") which is well below the allowable limit of 2,250 p.s.i. (75 percent of the specified minimum yield strength 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 American Society of Mechanical Engineers B31.8 Code, which is incorporated into Part 192 by reference.

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. In addition, the following factors support Keyspan's application. Casing spacers will be placed on the plastic pipe at intervals no greater than five feet. These will support the carrier pipe and allow for movement during expansion and contraction. The steel casing will continue approximately five feet past each of the abutments. 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. to establish a maximum allowable operating pressure of 60 p.s.i. Its normal operating pressure will be 0.5 p.s.i. (14 inches water column). 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 Energy Delivery is hereby exempted from the underground installation requirement in 49 C.F.R. Part 192 and authorized to install encased plastic pipe on the bridge on Herrick Road over the Massachusetts Bay Transportation Authority's Green Line tracks in Newton.

The foregoing waiver is granted with an effective date of December. 10, 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).

KeySpan Energy Delivery
201 Rivermoor Street
West Roxbury, Massachusetts 02132

August 24, 2001

Mr. Robert F. Smallcomb
Director, Pipeline Engineering and Safety Division
Commonwealth of Massachusetts
Department of Telecommunications and Energy (DTE)
One South Station
Boston, Ma. 02110

RE: Petition for Waiver to Install Plastic Pipe Across MBTA Bridge No. N-12-34 Herrick Rd. , Newton, Massachusetts

Dear Mr. Smallcomb,

In accordance with 220 CMR 101.02: Application for Exceptions and Waivers from Provisions of the D.T.E. Regulations, Keyspan Energy Delivery (the "Company") hereby petitions the Massachusetts Department of Telecommunications and Energy (the "Department") for a waiver from the provision of 49 CFR 192.321; "Installation of plastic pipe", paragraph (a). Paragraph (a) requires that plastic pipe must be installed below ground level.

The Company proposes to install approximately 37 linear feet of 8-inch nominal diameter, SDR 13.5, PE 2406, plastic pipe above the ground level across the above-referenced bridge. The bridge spans the Massachusetts Bay Transportation Authority's (MBTA) Green Line tracks. The pipeline will be a new main that will be inserted in a new steel casing pipe across a new bridge.

The pipeline will be joined by heat fusion and inserted into a 12-inch nominal diameter, coated and welded steel casing pipe. Although the 8-inch diameter pipeline will operate at an internal pressure of 0.5 psig, it will be tested in accordance with Massachusetts and Federal regulations so that it may operate at 60 psig.

The specifications for the plastic pipe appear as Table 1 and Table 2 in Exhibit A, and the specifications for the steel casing pipe 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 the supports, and the means for maintaining a separation between the plastic pipe and the metallic casing, appears on the construction plan shown in Exhibit C. In accordance with 220 CMR 101.06 (10) (a) (6), a plastic valve will be located on each side of the bridge, at the approximate distances shown on the construction plan 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, due to the fact that 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 during installation will vary between 60°F and 85°F.

The plastic pipe will not be exposed to excessive thermal stresses, the deteriorating effects 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 feel free to call myself at (617) 723-5512 ext. 4247. A check in the amount of \$100.00 has been included with this submittal for the filing fee required by the Department.

Sincerely,
William McElhinney, Senior Engineer

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:	12 in.
Outside Diameter:	12.750 in.
Inside Diameter	12.250 in.
Wall Thickness:	0.250 in.
Schedule Number	20
Weight per foot:	33.38 lb
Coating:	Pritec high molecular polyethylene outer coating with butyl rubber adhesive

EXHIBIT C

Installation Design

Drawing No. P-152