



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

DEVAL L. PATRICK
Governor

TIMOTHY P. MURRAY
Lieutenant Governor

IAN A. BOWLES
Secretary

LAURIE BURT
Commissioner

Pipe Bursting of Potable Water Mains Using Pre- and Post-Chlorinated HDPE Pipe

Effective Date: December 2009

Amended Date: N/A

Program Applicability: DWP

Supersedes Policy, SOP or Guidance # N/A

Policy#: DWP/POLICY 09-02

Approved By: 

Glenn Haas
Acting Assistant Commissioner BRP

Date: 12-31-09

Background

Traditionally, water pipes are replaced using the open trench method in which the pipe is cut, excavated, replaced, and the trench refilled. Alternatively, some contractors replace water pipes with a pre- and post-chlorinated high-density polyethylene (HDPE) pipe using a "pipe bursting" method. This method saves time and money and results in minimal disturbance to the overlying soil.

HDPE is a thermoplastic material. It is manufactured in sizes ranging from 1/2 inch to 63 inches. HDPE pipe is available in rolled coils of various lengths or in straight lengths up to 40 feet. Generally small diameters are coiled and large diameters (i.e., greater than 6 inches outer diameter) are supplied in straight lengths.

The pipe bursting method is simple in practice. Entry and exit pits including service connections are installed. Then the pipe bursting equipment is placed in the cavity of the pipe to be replaced through the entry pit. This equipment features a head followed by an expander. After complete entry of the pipe bursting equipment, the existing pipe either bursts or splits and remains in the ground. The HDPE replacement pipe is then routed through the cavity of the old pipe.

When additional pipe is required fusion techniques are used. The HDPE pipe sections are placed in lapping saddles. Heating coils within the saddles are energized, reaching temperatures between 450-500 ° C, resulting in melting. When the HDPE cools, it solidifies and the two pipes are joined.

The rehabilitation of water mains is described in AWWA Manual M-28. The pipe bursting technique is subject to this policy.

POLICY

In general, it is the policy of MassDEP Drinking Water Program to allow all public water systems to use the HDPE pipe bursting method for water main rehabilitation except for asbestos pipe replacement. Public water systems using this method of pipe replacement on pipes must follow the standard practices as specified in AWWA Manual M-28 and provide pre- and post-pipe chlorination in accordance to AWWA Standard C651-99. The public water supplier must prepare and follow a written operation and maintenance (O&M) procedure for the use of this method. The public water supplier's O&M procedure must be kept on file for MassDEP review and must follow the MassDEP Pipe Bursting Operational Guide. Installation shall be in accordance with the MassDEP Pipe Bursting Operational Guide.