Pipe Bursting for Lateral Rehabilitation

Dave Holcomb

Abstract

Pipe bursting is a trenchless method of pipe replacement and rehabilitation patented by British Gas. The pneumatic (air powered) pipe bursting process is responsible for 90% of pipe bursting performed in the U.S. and worldwide.

Common pipe bursting applications include water, sewer, and gas lines, as well as single and multiple duct telephone and power conduit. Pipe bursting lateral lines has increased dramatically over the past several years with advances in guide head technology and the development of smaller, space efficient tools.

Pneumatic tools can be used to burst fracturable pipes (cast iron, clay, non-reinforced concrete, ABS and some plastics) with diameters between 4 and 54 inches. Even larger diameter pipe bursting is on the immediate horizon. In the bursting procedure, a pneumatic tool is placed into the host pipe at an entry pit or manhole. A winch line, based at the exit area pit and attached to the head of the tool, guides it through the host pipe. Continuous percussion from the pneumatic tool fractures the host pipe. The tool effectively hammers its way through, forcing the fragments into the surrounding soil, while pulling the new pipe into place behind it. Same size or larger pipe can be installed with the pneumatic pipe bursting system.

Several factors dictate whether pipe bursting is appropriate for the rehabilitation of a failed line. These considerations include: host pipe material, diameter, condition, depth, and length; new pipe diameter requirements; soil conditions; location of peripheral utilities; and number of service connections.

In water line applications, challenges to this method include point repairs, cast iron host pipe, and number of service connections. By-pass operations are also a consideration.

By using the pneumatic pipe bursting process, considerable lengths of trench work can be avoided. Small entry and exit pits are much less disruptive and costly than long deep trenches. Positive social factors are an added benefit of this trenchless rehabilitation process.

Lateral Pipe Bursting

I. Introduction to the Panel - Dave Holcomb

II. Pipe Bursting

A. Pipe Bursting History

B. Pipe Bursting Basics

III. Case Studies

A. Case Study: Environmental Pipe Corp.- Outflow Pipe

8" VCP to 10" HDPE

7" Mini-Olympus with 10" Rear Expander

Hoechst Celanese Plant Salisbury, NC

B. Case Study: Potland Utilities- Sewer Lateral

4" VCP to 6" HDPE

5" PCG 130 with 6" Front Expander

Kingsport, TN

C. Case Study: Express Plumbing- Sewer Lateral

4" cast iron to 4" HDPE

5" Mini-Atlas No Expander

Apartment Complex San Mateo, California

D. Case Study: Southeast Pipe Survey- Sewer Lateral

190 lateral replacements

4"&6" VCP to 4"&6" HDPE

Various tools & equipment

Jacksonville, FL

IV. Pipe Bursting Risks

A. Depth

B. Point Repairs

C. Line Sags

D. Turns & Bends

E. Collapsed Lines

F. Joints

G. Single Run, Various Diameters

H. Water Problems

I. Difficult Access

J. Peripheral Utilities

If you have any questions, please contact **Dr. C.Vipulanandan**