

# Know

You Should



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A Message from the American Concrete Pipe Association

Bulletin No. 119

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## **Fire in Storm Sewers is Not Unusual – Which Pipe Should You Choose?**

When selecting pipe materials, the design engineer and the eventual owner of the infrastructure system should consider the durability of that system. While the term durability is often considered a product's ability to resist the slow, continual deterioration over time, durability can be measured instantaneously as well. The National Cooperative Highway Research Program Report 225 entitled "Plastic Pipe for Subsurface Drainage of Transportation Facilities" states, "Plastic pipe burns. A risk of destruction exists if flaming materials are introduced into a drainage system or if a fire occurs during storage."

In addition to the possible loss of the pipe and the associated infrastructure, the owner and designer must consider the danger to the general public and firefighters from flames and hazardous fumes.

The inconvenience suffered by the public and the loss of revenue to businesses during roadway repair are also major concerns, not to mention the liability facing the owner, contractor and design engineer that chooses flammable pipe.

Flammability of buried pipelines and culverts is a serious issue. Besides vandalism, one must consider fuel spills, brush fires and other means of ignition. The examples that follow show how specifying concrete pipe can limit liability in the case of fire.

### **Why Choose Concrete Pipe?**

Fires do occur in sewers and storm drains. When you choose concrete pipe you will significantly reduce your risk and the potential liability associated with a catastrophic failure.

- In Fort Worth, Texas, an 8,000-gallon gasoline tanker exploded in October 2000. According to the *Fort Worth Star Telegram*, "A gasoline tank truck toppled over and exploded during morning rush hour... shooting flames 2 stories high into the sky, dumping a burning river of gasoline into city storm sewers." If this pipe had been a flammable pipe, such as HDPE or bituminous/polymer coated metal pipe, it could have destroyed the pipe along with the neighborhood. Luckily, the pipe was concrete and no damage occurred.

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- On a construction site in Washington County, Pennsylvania, a fire started in a 48-inch HDPE pipe at an outfall near the edge of the property. The fire damaged 135 linear feet of pipe, and was extinguished when the pipe collapsed and cut off the air supply. The fire did not affect a 48-inch reinforced concrete pipe upstream from the HDPE pipe.
- Children near Tucson, Arizona found themselves in a dangerous situation while playing with fire in an HDPE pipe. Not only was the pipe destroyed by fire, but the sidewalk, roadway, and other surrounding structures were devastated as a result of the pipe failure. The blazing HDPE pipe was near a 4-inch diameter gas main, which could have ignited, causing a devastating and potentially lethal explosion.
- In Blytheville, Arkansas, children found themselves in the same situation when they discovered an accessible end to an HDPE pipe, and started a fire. The fire destroyed 10 linear feet of the 54-inch diameter pipe. The fill above the pipe collapsed and extinguished the fire. Fortunately, the children were not inside. This pipe was repaired with concrete collars around the joints.

Is the use of drainage products other than concrete pipe really worth the risk? More and more design engineers don't think so. They specify concrete pipe because it doesn't burn or rust, is not affected by ultraviolet light, gains strength over time, and **concrete pipe's estimated service life is 100 years or more**. Sometimes the least costly pipe is the one you don't have to dig up and replace.