

U.S. EPA Asbestos Cement (AC) Pipe Replacement

BACKGROUND

- Used extensively in the mid-1900s, AC pipe (also known as transite pipe) was a popular choice for potable water, sanitary sewer, and storm drain pipelines.
- AC pipe accounts for approximately 15% (~600,000 miles) of water main pipe material in North America.
- The majority of AC water pipe was installed between 1940 and 1980. With a typical life span of 50 years, it is past or nearing the end of its useful life.
- Over time, the cementitious bonds in AC pipe erodes, causing leaks and the continued degradation of the pipe.
- During the pipe replacement process, AC pipe can become friable and is regulated under the Asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61, subpart M.

ASBESTOS NESHAP REQUIREMENTS

- The Asbestos NESHAP requires the removal of all regulated asbestos-containing material (RACM) that exceeds the threshold requirement of 260 linear feet of pipe from a facility (including facility components such as pipe) subject to demolition or renovation before any activity begins that would break up, dislodge, or similarly disturb the material or preclude access to the material for subsequent removal.
- RACM is defined as nonfriable asbestos-containing material that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material during demolition or renovation operations regulated by the NESHAP.
- Pipe replacement is considered a renovation activity under the Asbestos NESHAP.

AC PIPE REPLACEMENT METHODS

Approved Methods¹

1. Open Trench:
 - Open trenching involves excavating the entire AC pipe, wet-cutting the pipe into sections using a snap cutter or similar tool, wrapping the pipe for containment, and removing the pipe for disposal.
2. Close Tolerance Pipe Slurrification (CTPS):
 - On May 30, 2019, EPA approved an alternative work practice for AC pipe replacement, known as close tolerance pipe slurrification (CTPS). This work practice provides for a trenchless method of removing and replacing AC pipe and is as protective of human health and the environment as the Asbestos NESHAP. Also, it may be used as an alternative to the open trench method noted above.
 - CTPS involves replacing existing AC pipe completely underground (trenchless), while minimizing the disturbance of above ground structures such as buildings or roadways. With this method, AC pipe is simultaneously ground up and turned into a cementitious slurry, which is removed by a vacuum truck. A small portion of the slurry (skim coat) remains around the new pipe. The skim coat resolidifies into cement that is nonfriable. When used correctly, CTPS should not leave friable asbestos in the ground.
 - CTPS may be a more cost-effective option than the open trench method, especially in urban environments where utilities run under highways and buildings.
 - Additional information about CTPS may be found on EPA's website.²

¹ Additionally, owner/operators of AC pipe can choose to abandon in place the existing AC line. By abandoning the AC pipe in place and installing a new line (adjacent or at a different location) without disturbing the existing AC, the pipe replacement project would not be subject to the NESHAP requirements. However, if the abandoned AC pipe is acted on in the future in a way that would create RACM, it would become subject to the NESHAP requirements.

² U.S. EPA, Notice of Final Approval for an Alternative Work Practice Standard for Asbestos Cement Pipe Replacement, <https://www.epa.gov/stationary-sources-air-pollution/notice-final-approval-alternative-work-practice-standard-asbestos>.

Other Not Approved Technologies

- Pipe Bursting:
 - Pipe bursting is a method by which a hydraulic or pneumatic expansion head (part of the bursting tool) is pulled through the existing pipe. As the expansion head is pulled through the existing pipe, it pushes that pipe radially outward until it breaks apart, creating a space for the new pipe. The bursting device also pulls the new pipeline behind it, immediately filling the void created by the old pipe with the new pipe.
- Pipe Breaking:
 - Pipe breaking is largely the same process as pipe bursting with emphasis on gradually pulling and breaking the pipe into relatively uniform strips.
- Both bursting/breaking AC pipe render the existing pipe friable and do not comply with the requirements of the Asbestos NESHAP. In addition, broken pieces of AC pipe have the potential to move to the surface through soil migration, erosion, and/or frost heaving.

MORE INFORMATION

- For additional questions on asbestos cement pipe replacement and the Asbestos NESHAP:
 - Visit our website: <https://www.epa.gov/stationary-sources-air-pollution/asbestos-national-emission-standards-hazardous-air-pollutants>.
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