Close Tolerance Pipe Slurrification: Proven Solutions for Asbestos Cement Pipe in Sunrise, FL

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What to Expect

- Project beginnings
- Solution options
- CTPS overview
- Case study details

Problem

600,000 miles of deteriorating asbestos cement (AC) pipelines in North America

Most exceeding useful life

38,500 LF (AC) pipe to be remediated in Sunrise, FL

Concern

EOR submitted original project designs for Pipe Bursting

Designs flagged by the Florida DEP & County due to AC pipe

- **Florida DEP/County was knowledgeable of regulations & EPA memo which states that Pipe Bursting AC Pipe is not an EPA approved method**

EPA Clarifying Memo

In 2022, the US EPA issued a clarifying memo outlining approved AC pipe replacement methods:

- Open Trench
- CTPS

The memo specifically states that pipe bursting/breaking are “not approved technologies”

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.
  - please contact:
    Korbin Smith BS, MPH

FDEP Asbestos FAQ Page

https://floridadep.gov/air/permitting-compliance/content/asbestos-faq

Asbestos Concrete (AC) Pipe Replacements

What are approved methods for removing/replacing underground cement pipes containing asbestos?

EPA has two approved methods for AC pipe removal/replacement (see Memo dated April 13, 2022).

1. Traditional open-cut trench method where the pipes are dug up, cut into sections, and removed.
2. Close Tolerance Pipe Slurrification (CTPS) where wet AC pipe is ground into a slurry and removed with a vacuum. A new pipe is inserted and a skim coat of nonfriable cementitious asbestos-containing material is left on the outside rim of the new pipeline. For more information on CTPS, see EPA's Guidelines for Replacing Cement Pipe by Close Tolerance Pipe Slurrification and the following EPA webpage: https://www.epa.gov/stationary-sources-air-pollution/notice-final-approval-alternative-work-practice-standard-asbestos.

Please be aware that EPA has not approved pipe bursting and leaving AC debris in place. In addition to the site of the pipe bursting needing to be reclassified as an inactive waste disposal site, pieces of the broken pipe can work their way up through the soil over time and risk contaminating the surrounding area.

Solution

Design Engineers reviewed the EPA memo and moved forward with project design utilizing one of the EPA approved AC remediation methods:

Close Tolerance Pipe Slurrification (CTPS)

EPA

Replacement Options

1. Open Trench
   - Direct replacement
   - Grout/Abandon & Open Cut New Line

2. Close Tolerance Pipe Slurrification (CTPS)

Selected Methodology

Due to the location within a subdivision with houses very close together CTPS was chosen as the preferred method to remediate the existing AC Pipe.

- Remove the AC pipe
- Reduced surface disruptions
- Potential cost savings
- Massive time savings

What is CTPS?

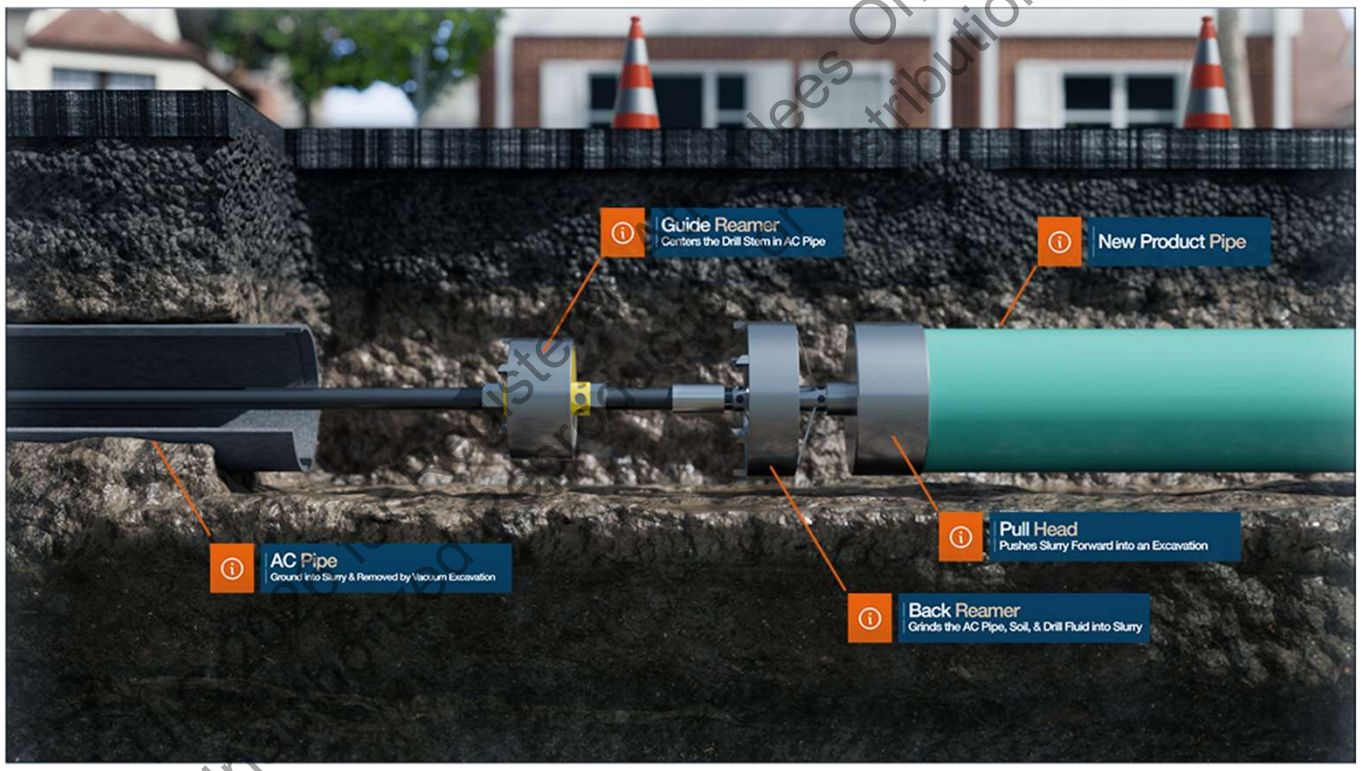
Close Tolerance Pipe Slurrification

- The only EPA approved trenchless method for AC Pipe replacement
- Reduces surface disruption up to 90% compared to Open-cut
- Removes AC pipe from the ground and encapsulates all fibers
- EPA approved Alternative Work Practice in 2019
- NASTT Abbott Award – Innovative Product winner 2025
- UI Award Finalist 2026

CTPS Overview

- EPA approved trenchless option for AC pipe replacement
- Uses proven equipment
- Combines drill mud & AC pipe and turns them into a slurry – pulled to pits and hauled away for disposal
- Simultaneously pulls in new fused pipe in same alignment
- Technical Envelope – 4” to 20” AC pipe
- Can Upsize

Tooling Overview



Case Study - Sunrise, FL

Water Main

- 6” CTPS – 22,970 LF
- 8” CTPS – 8,595 LF

Force Main

- 6” CTPS – 2,560 LF
- 8” CTPS – 1,456 LF
- 10” CTPS – 2,864 LF

Project Profile

- Insertion / Receiving Pit – 13’ x 3’
- Service Excavation // Relief Hole – 3’ x 3’
- Hydrant Excavation – 5’ x 5’
- Hydrant
- Valve
- HDD Rig
- 6” AC Potable Water Line
- 2” Temporary Water
- Driveway amp
- 6” Fused Pipe

Before & After

Upstream / Start — — — ► Downstream / Finish

Materials Handling // Disposal

Materials // Testing

All asbestos fibers are encapsulated during the CTPS process

Slurry material re-hardens to become non-friable

ASTM standard established in 2023

QA/QC – material friability testing

Conclusion

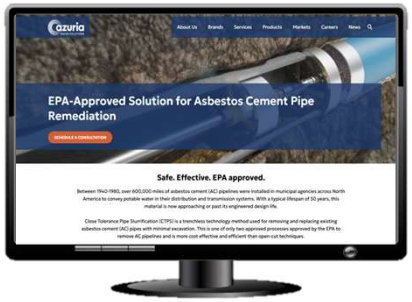
Project was completed on time and within budget

Client was pleased with the results and has two subsequent projects

Upcoming project in Corpus Christi

CTPS should be considered on all AC pipe replacement projects
4” – 20”

Questions?



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