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BENEFITS OF PIPE SLITTING TECHNIQUE FOR GAS LINE REPLACEMENT OR DECOMMISSIONING

Alan Goodman, HammerHead

A little history



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From the 1970s through late 1990s, high pressure plastic and polyethylene-based pipe materials made by DuPont were widely used in many natural gas distribution systems under their most familiar trade names, Aldyl-A and PVC (polyvinyl chloride).



In this Sept. 9, 2010 file photo, a massive fire roars through a mostly residential neighborhood in San Bruno, California.

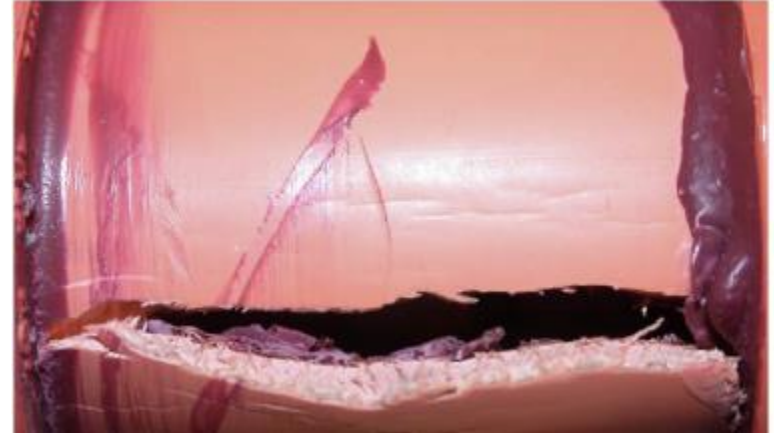
Photo source: The Associated Press

A little history



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By 1983 these materials began to show susceptibility to brittle-like cracking that made them prone to leaking and rupture.



“They’ve found in some areas this type of plastic pipeline has become brittle.”

Brad Underwood
Public Works Director
Foster City, California

Source: *The San Francisco Examiner*

A little history



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At that time DuPont changed the resin in the product, and the cracking phenomenon has not been observed since.

The product, however, was discontinued in 1998 due to the industry's distrust of the initial product, which persisted even after the change in composition.



Gas Pipe Replacement for Main & Services



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- Vintage Plastic Pipes
 - Up to 6", using winches to replace.
- Fracturable Cast Iron
 - Up to 6", using winches to replace.
- Non-Fracturable Pipes
 - Splitting Steel
 - Up to 16", ductile and steel.
 - Extraction Replacement
 - Small diameter steel pipes .5" - 4" – DEVELOPMENT CONTINUES.
 - Large Diameter 6" and larger.



MDPE replacement



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- A large majority of gas companies are in the process of replacing these pipes with proven medium-density polyethylene (MDPE).
- An efficient method of replacement is needed.



Old Style Tooling 2000-2010



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- Cast Iron and Steel
 - Rod pulling machines rated at
 - 30 tons.
 - Tooling suited for pipe to be decommissioned.
- Aldyl-A, PVC, & HDPE
 - Cable winch rated at 12 tons.
 - Tooling suited for pipe to be slit.



NPL- Manassas, VA in 09-2010



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NPL- Manassas, VA in 09-2010



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Slit Aldyl-A with newly installed MDPE



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Tooling Review

Gas Line Slitter Tooling String

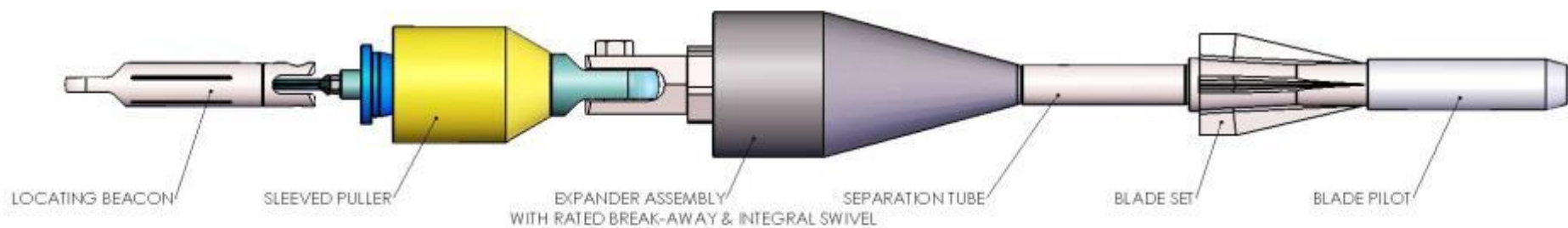
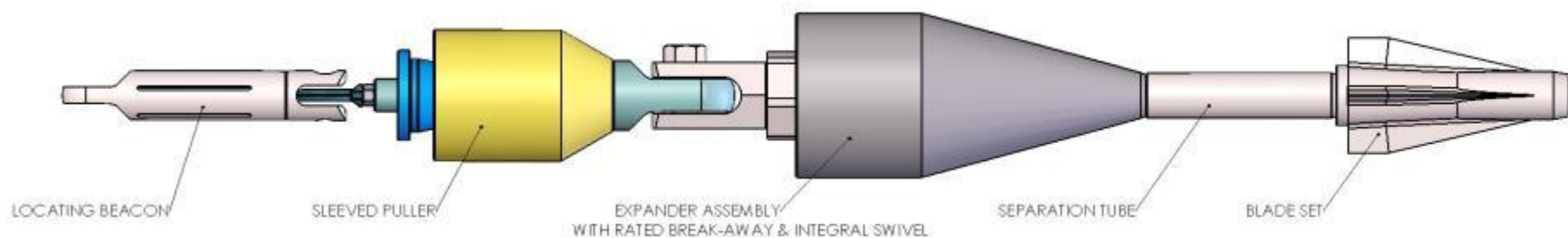
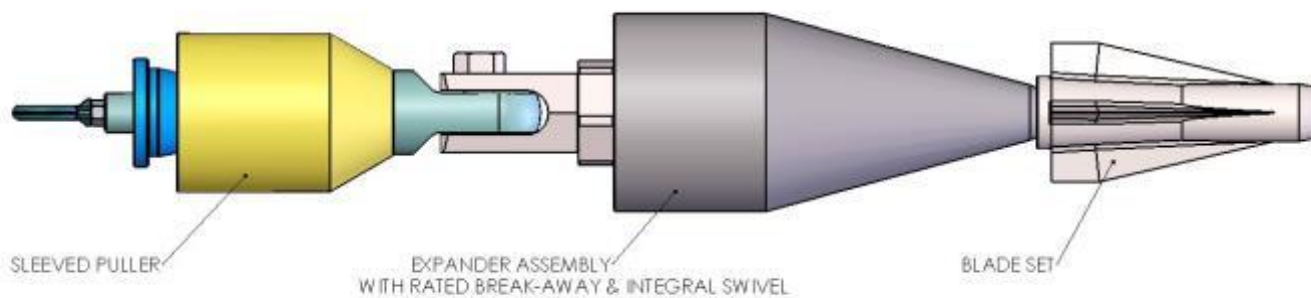


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New Style Tooling Designed & Utilized Last 5 years



- Not shown – Breakaways and locator housings.













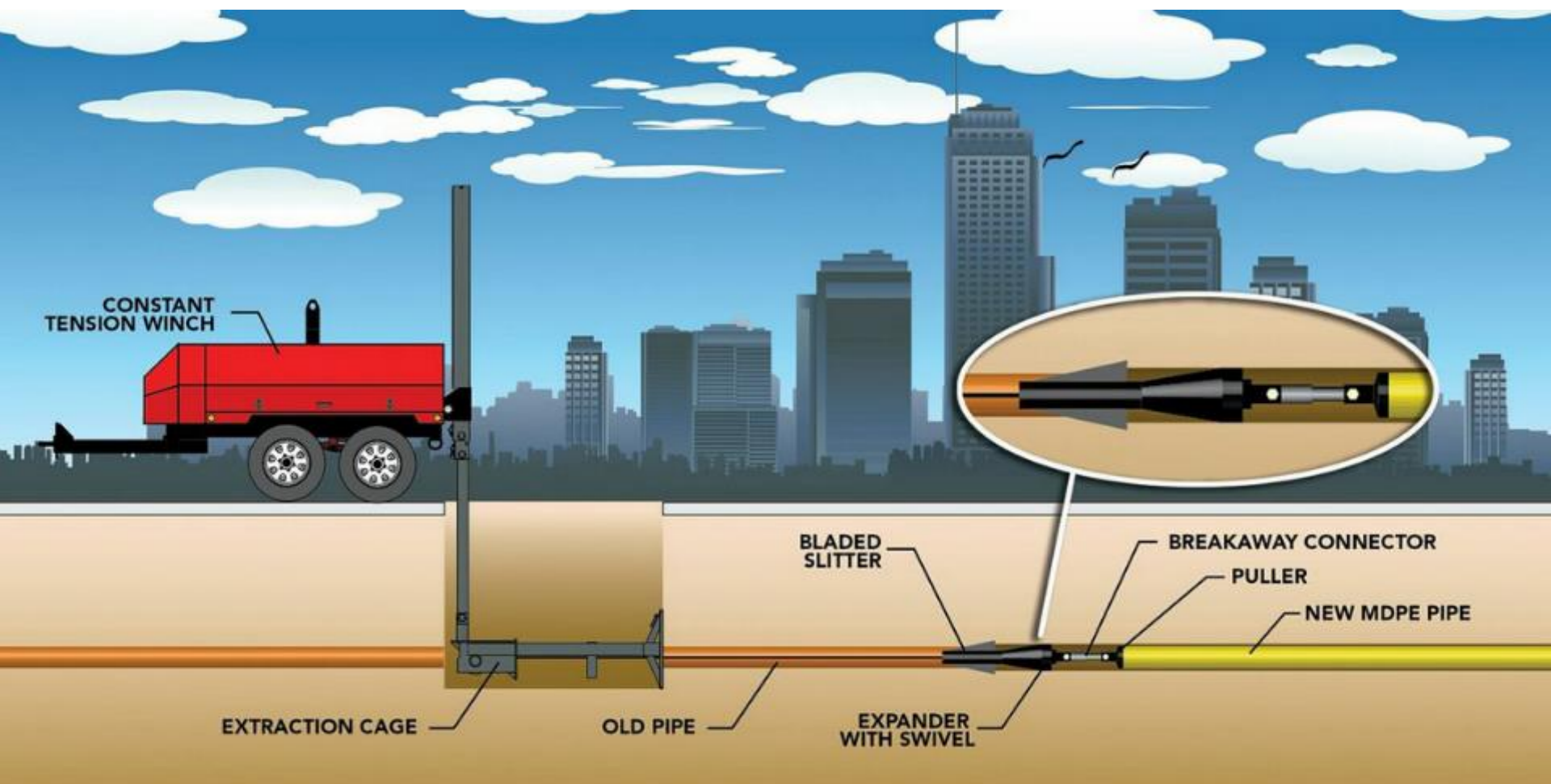
- ☐ **Currently there are over (500) part numbered slitting tools and pullback tools from HammerHead specifically designed for the gas line slitting industry in sizes to slit 1/2" lines up to 4", mains and services.**

- ☐ **Coupled with the Ditch Witch Tracking and Electrical Strike Systems, no other slitting technology offers the level of Safety or Notification, Tracking and As Built capacity as what is offered today by HammerHead.**

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Trenchless Gas Slitting



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- Highly efficient process (production)
- Specialized tooling
- Cost efficient



Cable Winch System



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- Cable winch system
- Integrated ESID systems
- Available in 3, 5, 12 and 20 ton units



Integrated ESID System



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Integrated ESID System



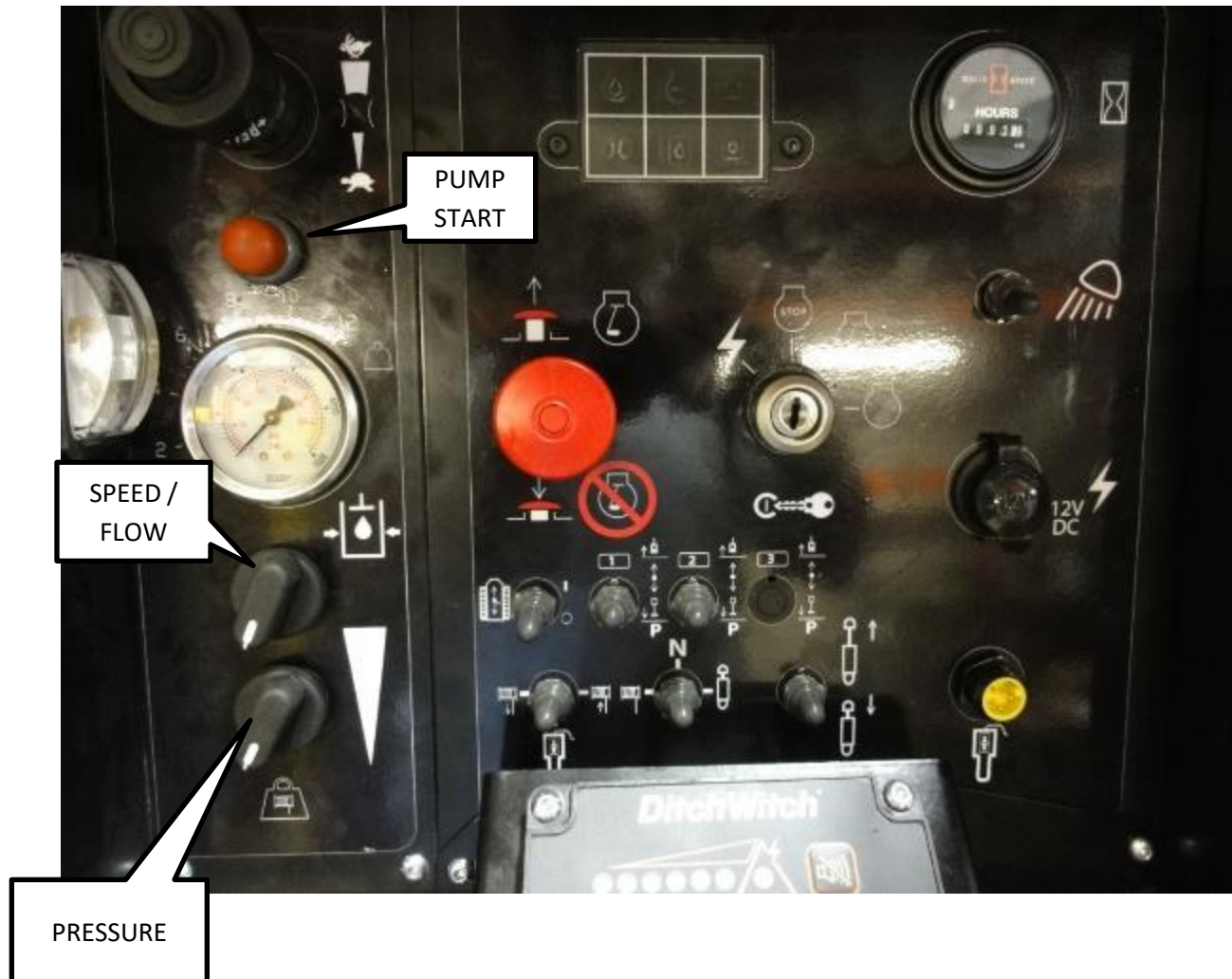
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Twin Reostat Controls



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Locating System



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PROCESS REVIEW

Squeezing off mains prior



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Blowing mule tape down pipe to install cable in pipe



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Ready for first pull. Training crew how to track the beacon



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Tracking the progress electronically, to know line/location

Break Away for new pipe and mule tape used to pull cable through pipe.





Splitting extracted pipe at the HG 12 winch to eliminate down time cutting the pipe off the cable.



Video to show splitting process



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Exploded view of new setup



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Setting the winch up

UCT
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Aldyl-A Couplers Encountered



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Well, the break away pins work.....



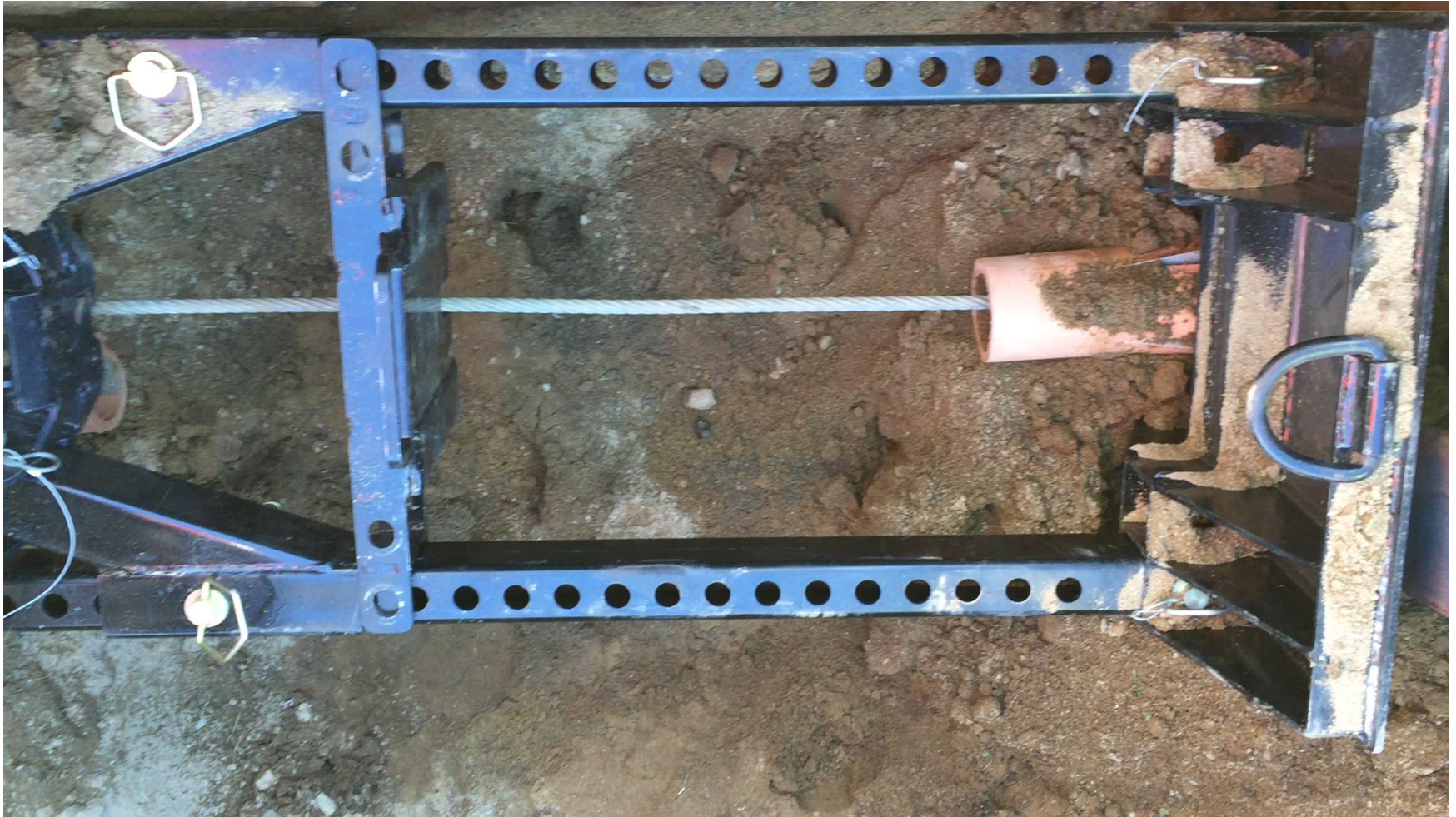
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End of an Aldyl-A Split



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Dealing with Steel Pipe



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Same Path Technology- Slit & Replace



Splitting Steel Pipe



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Decommissioning 4" Steel Pipe & Pipe Extraction



TRENCHLESS TELEVISION

Extracting Steel Pipe



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Extracting Steel Pipe & Grouting Void



Conclusions



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- Pipe slitting method gives gas line distributors a solution to overcome the obstacles of some of the early brands of plastic gas line.
- Its machinery and tooling are simple to use and have a small footprint.
- These specially designed tools overcome the characteristics of brittle pipe that cannot be pulled out or successfully burst.
- Pipe slitting method can be used in the confines of urban settings.
- It entails the least demolition and restoration of pavement, surface structures or coexisting utility lines.
- Replacements can be scheduled to take place with minimal impact on end user daily routines.



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