

CROSS BORE INSPECTION TECHNOLOGIES:

Lights, Camera, Action



By: Cindy Kerr, ckarma marketing



Q&A with David Wickersham, President, CEO and Founder of Progressive Pipeline Management, a pipeline technology leader specializing in trenchless rehabilitation for the natural gas industry.

Why is it important to do cross bore inspections?

A cross bore happens when an existing underground utility or structure is intersected by a second utility installed using trenchless technology, predominantly horizontal directional drilling. When directionally drilled, a gas line penetrates the sewer line, there is a risk that the gas line may block the flow of the sewer line into the residential house

or business. If the home/business owner experiences a sewer back-up and calls the local plumber to snake the blocked line, unseen damage to the gas line may occur. If the damage is severe enough, a gas leak may occur and pass back into the home or basement. If ignited, a single incident can cause millions of dollars in damage and more importantly potential loss of life.

Utilities that do cross bore inspections are acting in a preventive and proactive way to protect home/business owners and avoid multimillion-dollar disasters. Closed Circuit Television (CCTV) inspections provide visual evidence of the existence of a cross bore.

How did PPM start doing cross bore inspections?

We have been servicing the natural gas industry for over 15 years with our trenchless pipeline rehabilitation technologies that include CCTV camera inspections. We know how gas companies think and work. One of our clients asked us if we had a way to investigate every

sewer lateral that could have potentially been impacted by a gas service line that was installed via directional drilling. Aries Industries, our CCTV equipment provider introduced to their Lateral Evaluation Television System (LETS.) A main line robotic CCTV camera with a piggyback LETS camera can launch robotically into a sewer lateral from the sewer main. It's ideal for cross bore inspections, a hot button for gas utilities. For seven years we've been doing cross bore inspections for natural gas utilities, especially in dense, urban areas throughout Mid Atlantic and Northeast.

How do you find them?

The process is a collective effort between the Gas Company, municipality and contractor. After meeting with the township and developing the job specifications and locations, we water-jet clean the main line, inspect and launch the LETS for full inspection of each lateral from manhole to manhole. The main-line camera launches through a

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“EVERY TIME WE FIND A CROSS BORE AND HAVE IT ELIMINATED, WE HAVE AVOIDED A POTENTIAL CATASTROPHIC INCIDENT AND HELP TO MAINTAIN A SAFE GAS PIPELINE INFRASTRUCTURE.”
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– *DAVID WICKERSHAM, PRESIDENT & CEO, PROGRESSIVE PIPELINE MANAGEMENT*
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sewer manhole. You don't have to involve the homeowner at this point presuming you can make the lateral launch. If you cannot launch the camera due to obstacles or condition of the main, we access the lateral from the cleanout, which may involve working with the homeowner. The municipality benefits from this service with the cleaning and CCTV inspection of the sewer main.

We have two types of lateral inspection,

namely legacy and emergent. Legacy jobs are existing laterals that may have been impacted by past plastic gas service lines installed using the drilling technology. Horizontal directional drilling rigs don't know where the drill head is going and can unintentionally drill right through a reinforced concrete or clay pipe. Emergent projects are done prior to the drilling to mark and map out all the laterals in the drill path. By inspecting and locating

the sewer laterals prior to drilling, the contractor or gas utility can adjust his drilling plan and navigate to stay clear of the sewer lateral. We come back after drilling to confirm no cross bores occurred.

What is great about CCTV technology?

The only way to predetermine there's a cross bore is through visual inspection. When it's too late, you have an issue

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Screen shot of an actual cross bore

from the homeowner's house or cleanout is invasive and can alarm the resident. We do everything possible to avoid that.

The camera and rig consists of a remotely operated camera mounted on a self-propelled robotic crawler connected to a video monitor. The system is truck mounted with an operating station. The back of the truck houses the electric or hydraulic reel system and cabling that connects to the camera. The operator sits at a control station that looks like an XBOX console. Two flat screen displays show the live view of the mainline camera and the view from the lateral with the LETS camera arm.

There are only a few companies making cross bore investigative cameras. PPM has partnered with Aries Industries for over a decade. The cameras have crystal-clear views with full color pan-and-tilt capability, which greatly improves the ability to traverse difficult laterals. The mainline crawler is like a small tractor that drives itself through the sewer main. The LETS arm and the lateral camera launches off the top of the main camera into the sewer lateral for distance up to 150 feet.

with a sewer backup flooding someone's basement or potentially a catastrophic explosion. CCTV Camera inspection is

the most non-invasive way to inspect for cross bores. It's a visual inspection with video footage. Accessing the lateral



Aries camera with Lateral Evaluation Television arm

What advancements have improved cross bore inspections?

The video of the pipe is as good as watching HDTV, and with the LETS camera arm you get a 360 view. But what's really driven improvements in this space is the lighting. Remember its complete darkness in a pipe. The transition from halogen to LED lighting systems has been a tremendous advancement to get very bright lights with low voltage.

What happens when you find a cross bore?

A typical natural gas HDPE plastic pipe that has been directionally drilled is narrow and bright yellow. When you see it in the lateral you know instantly. We follow protocol with immediate notification to the gas utility. It's an emergency situation and the utility sends a response team to excavate and repair within 24 hours. The homeowner is notified not to use any facilities.

What else have you found?

Anytime you're inspecting a pipeline underground that you've never seen there are always unknowns and challenges for the operator and the equipment to avoid getting stuck or damaged. Sometimes there are cross bores that aren't gas pipelines, such as electrical conduit or water lines. There can be root intrusion or what we call offset joints or protruding laterals, which prevent the camera crawler from getting through. It takes experience, time and lots of troubleshooting to address each situation.

Could a gas utility buy a CCTV camera and do inspections themselves?

Gas utilities, from engineering to field operations typically do not do pipeline inspection. The gas utility doesn't have experience with CCTV of sewer lines. PPM has made a significant commitment and investment of almost \$2 million in equipment, staff, training and infrastructure to help address this need for our gas customers. Our operators are thoroughly trained and experienced in and around sewer mains, laterals as well as gas mains. It makes more sense for a gas utility to rely on a company such as PPM that focuses on pipeline inspection.



Fabian Becerra PPM Operator at the CCTV control station

What is happening in the industry around cross bores?

We see the industry being serious about cross bore inspections. It's on AGA's agenda. The Public Service/Utilities Commission is mandating some cross bore programs. Others are initiated by the utility. PPM is proud to help keep our country's infrastructure safe and leading the field with cross bore investigation programs. Every time we find a cross bore and have it eliminated, we have avoided a potential catastrophic incident and help to maintain a safe gas pipeline infrastructure. †

ABOUT THE AUTHOR:



Cindy Kerr is a seasoned marketer and website developer with 25 years' experience across several continents. She has a niche with pipeline and industrial companies

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