EXECUTIVE SUMMARY

As the demand for natural gas continues to grow throughout the US, utility companies increase the capacity of their system by uprating low-pressure segments to higher pressures. Prior to uprating, the utility must account for all gas services, branches, stub services, fittings and equipment that will be exposed to increased pressures to ensure pressure regulation equipment is in place and avoid accidental over-pressurization or equipment failures.

Obtaining detailed and accurate mapping of the main and all connections to the main is a critical first step in the uprating process, but utility records often lack the detail needed or may be missing completely. The deployment of location-enabled live gas main camera technology has proven to benefit uprating projects by identifying all connections to the main and ensuring all couplings, valves and branches are accounted for prior to introducing increased pressures to provide project efficiency and confidence.

CHALLENGES

Current methods of identifying and verifying all connections and key features of a low-pressure system prior to uprating is challenging due to:

• Reliance on inaccurate or outdated archived maps that don’t identify all the key features on the gas main prompting over-pressurization.

• Outdated couplings and fittings designed for low pressure system may not be included in archived mapping.

• Inaccuracies in utility mapping may require the utility to dig excessive test pits to verify the location of features, which increase project costs and disrupt the community.

INDUSTRY: Gas Distribution

BUSINESS AREAS ADDRESSED:

• Asset Management
• Engineering
• GIS & Mapping

SOLUTIONS IMPROVED:

• Community Safety
• Project Efficiency
• Confidence

RESULTS:

• Assess Each Service or Branch and Apply to a Home Address for Confirmation
• Enhance Field Operations to the Highest Safety Measures
• Remove Guesswork by Providing Enhanced Workflow
• Eliminate Over-pressurization by Addressing Hazardous Features
• Ensure all homes and businesses are furnished with proper gas regulator equipment
HIGHLY ACCURATE IN-PIPE LOCATING CAPABILITIES

In order to confirm all services, branches and fittings are identified prior to uprating, ULC’s crews work to deploy location-enabled inspection cameras into the live gas main so these features can be verified through visual means within the pipeline.

- Accurate mark out and mappings generated by ULC Robotics provide engineers the ability to safely carry out uprating projects with the assurance and knowledge of their entire pipeline network.
- Full knowledge of the project scope during the initial planning stage helps utility personnel generate accurate project costs for improved go/no-go decisions.
- ULC’s machine learning algorithms are being integrated to aid in identifying and locating all the features within the network such as each service and branch tied to the main, as well as other important features of interest prior to uprating.

LIVE GAS MAIN INSPECTION PROCESS

ULC’s highly skilled and trained technicians work to identify features within the pipe by deploying a location-enabled camera system into the live gas main.

IDENTIFY SERVICES/BRANCHES
As the camera operator performs the internal inspection, the camera is stopped under a feature in the main such as a tap hole or branch.

LOCATE CAMERA
Once the camera is positioned under a feature, the second technician onsite can pinpoint the location of the camera from above ground.

MARK OUT
The highly accurate location of the feature is marked out and noted in the filed. If requested, GPS locations of each mark can also be obtained.

IDENTIFY HOME ADDRESSES
Each service tee or branch identified within the gas main will be investigated and tied to a given home address. Any service/home that cannot be identified will be pointed out as a possible hazard and communicated to the client.

CREATE DETAILED MAPPING
Detailed and accurate reports and mapping will be created for each pipeline inspected. This will include locations of all pipeline features and home addresses tied to all services encountered.

REVIEW MAPPING WITH END USER
To ensure all the data collected by ULC robotics is clear and understood by the end user, a field briefing can be conducted between ULC project manager and utility or contractor forces.

MARKED & MAPPED FEATURES:
Fusions, Couplings, Services, Tees, Offsets, Valves, Branches, Stub Services

DIAMETER RANGE:
2”+ PE, Steel & Cast Iron

MAX PRESSURE:
99 PSI
KNOW YOUR NETWORK
PRIOR TO UPRATING

The use of ULC Robotics’ in-pipe locating services provide improved safety to uprating programs by identifying all connections to the main and equipment installed on the main prior to increasing capacity. Our highly accurate mapping helps utilities know their network with the highest level confidence and safety.

ULC LIVE GAS MAIN INSPECTION & IN-PIPE LOCATING SERVICES

With dedicated field crews and an array of cameras and crawlers, our staff is ready to deploy the right inspection tool for your teams next project. From steel, plastic and cast iron, our robust systems provide reliable data that gives utility contractors 100% confidence to carryout work safely and efficiently by looking directly inside the pipes.

Contact us to learn more about our Live Gas Main Inspection Services: 1-631-667-9200 / www.ulcrobotics.com