

Natural Gas Leak Survey and Response

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Natural Gas System

Services: 106,716

Service Territory:
293 square miles

Mains: 2,517 miles

Distribution

Steel: 154 miles

Plastic (MDPE): 2,287 miles

Ductile: ~1 mile

Higher pressure

Steel: 69 miles

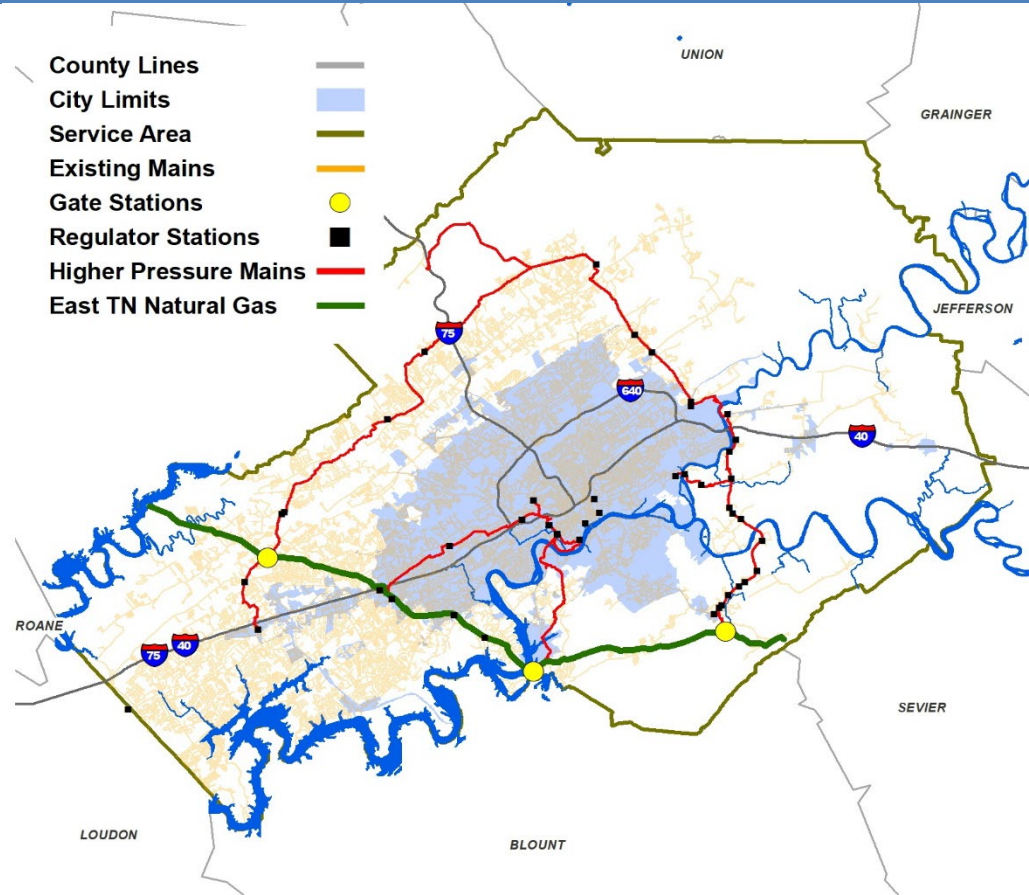
Plastic (HDPE): 6 miles

Gate Stations: 3

Regulator Stations: 48

System Capacity: 157,381 dth

Peak Demand: 140,204 dth (Jan. 2018)





Our Vision:

KUB exists to serve its customers, improving their quality of life by providing utility services that are safe, reliable and affordable.

Shared Values:

- We value the safety and well-being of our customers and employees.
- We value fairness, and try always to make decisions that provide the greatest good for the most people.
- We are in a position of trust and hold ourselves to high ethical standards.
- We improve the value of our services through efficiency, innovation and communication.
- We value the commitment and hard work of our employees.
- We are environmentally responsible in our operations and support the sustainability of our communities' natural resources.
- We participate in the communities we serve.

Our Mission:

Our mission is to act as good stewards of our communities' resources: utility assets, customer dollars, and the environment. We work to safeguard those resources and enhance their value for the people of the communities we serve and generations to come.

We Measure Our Success by:

Customer Satisfaction

System Performance

Financial Performance

Safety Performance

Keys to Success:

Managing Our Utility System Infrastructure

Electric

Natural Gas

Water

Wastewater

Improving The Customer Experience

Managing Our Finances Effectively

Meeting Or Exceeding Regulatory Standards

Investing In A Skilled, Diverse Work Force

Partnering For Economic Development

Being Environmentally Responsible

KUB BluePrint

More Than a Regulatory Program

- DIMP required in 2011
- Ensures the work performed is risk based
- Influences decision making and budget
- Shapes work practices and path forward



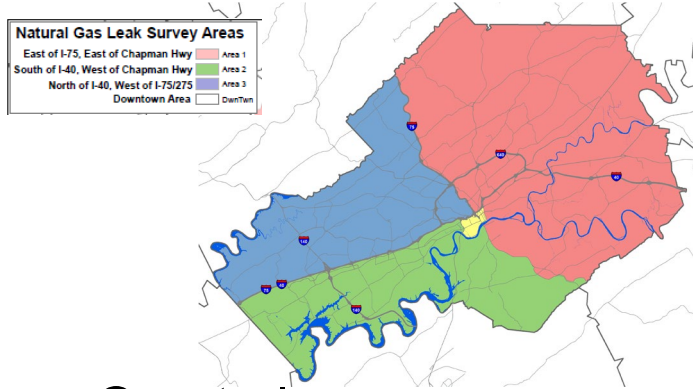
Keys to **Success:**

**Meeting Or Exceeding
Regulatory Standards**

Leak Survey Is Critical for Integrity Management

■ Three Year Cycle

- Residential (M/S)



■ Quarterly

- Remaining ductile iron pipe (M)

■ As Needed

- Pre- and post-blasting (M/S)
- Post-earthquake

■ Annual Cycle

- Non-residential (M/S)
- 7 psig system (M/S)
- Higher pressure systems (M/S)
- University of Tennessee, Knoxville Campus (M/S)
- Targeted Cold Weather (M)
- Gate and regulator stations
- Bridge crossings (M)
- Key valves
- Shorted casings (M)
- Backlot mains (M/S)
- Underwater mains (M)

*Green = Above and beyond regulation

Leak Surveyor Resources are Equipped

■ Technicians

- 4 Full-time employees
- Shifts – Daytime but are paid standby to respond after hours



■ Equipment

- Remote methane leak detector
- Vehicle mounted detector
- Combustible gas indicator
- Portable multi-gas detector

**Replaced every 4
years (minimum)**

Timely Leak Repairs

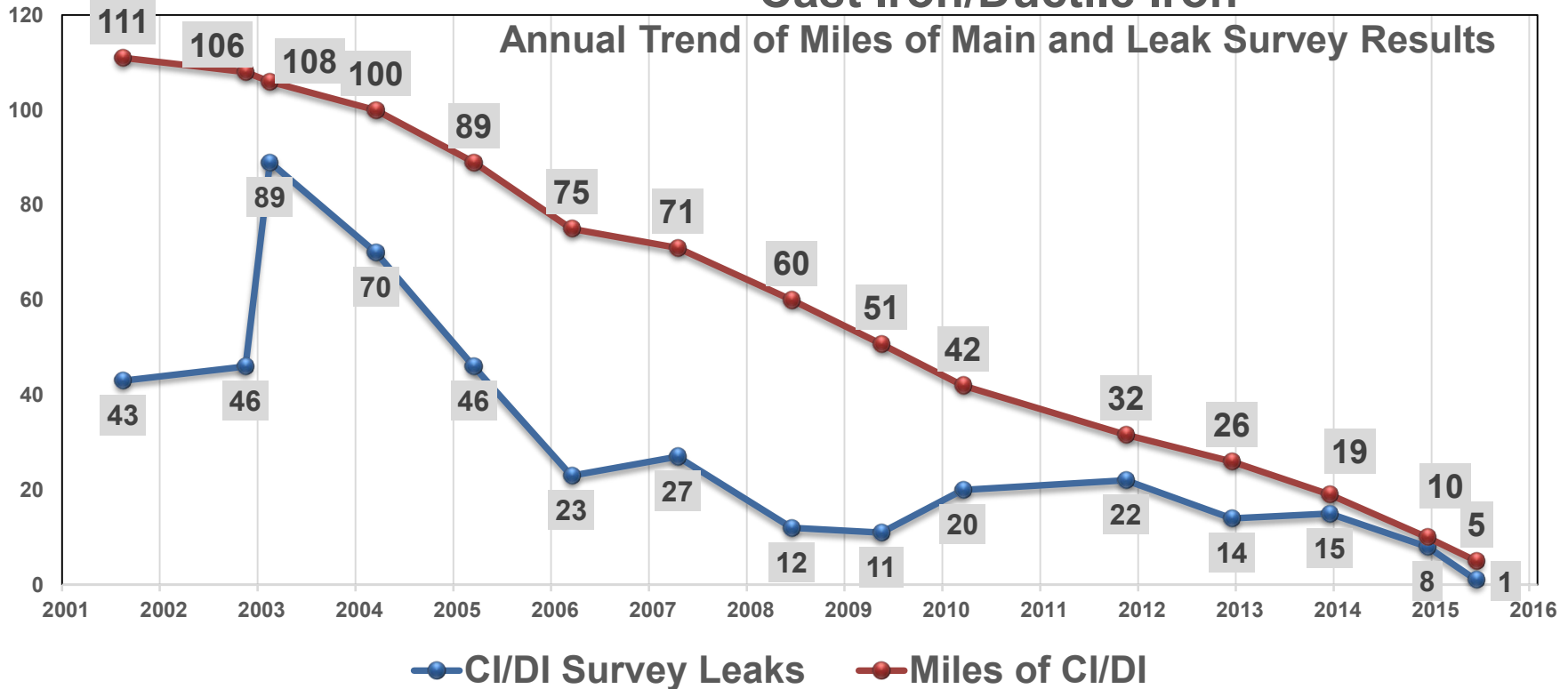
- Grade 1 – Immediate repair
- Grade 2 – Typically repaired within 90 days
- Grade 3 – Typically repaired within 6 months unless within a project
 - TAL – Immediately when possible

Leak Grade	Definition
1	A Grade 1 leak is a natural gas leak, which because of its location and/or relative magnitude, constitutes a potentially hazardous condition to the public or buildings. Any Grade 1 leak requires corrective action that shall consist of immediate effort to protect life and property and continuous action until the condition is no longer hazardous and scheduled for immediate daily repair activity.
2	A Grade 2 leak is a natural gas leak that does not constitute an immediate hazardous condition to the public or buildings but requires scheduled repair. Grade 2 leaks are scheduled and repaired within a 12-month period or monitored at least every 6 months until cleared.
3	A Grade 3 leak is any other leak not classified as either a Grade 1 or Grade 2 leak.

Leaks Decline with Replacement

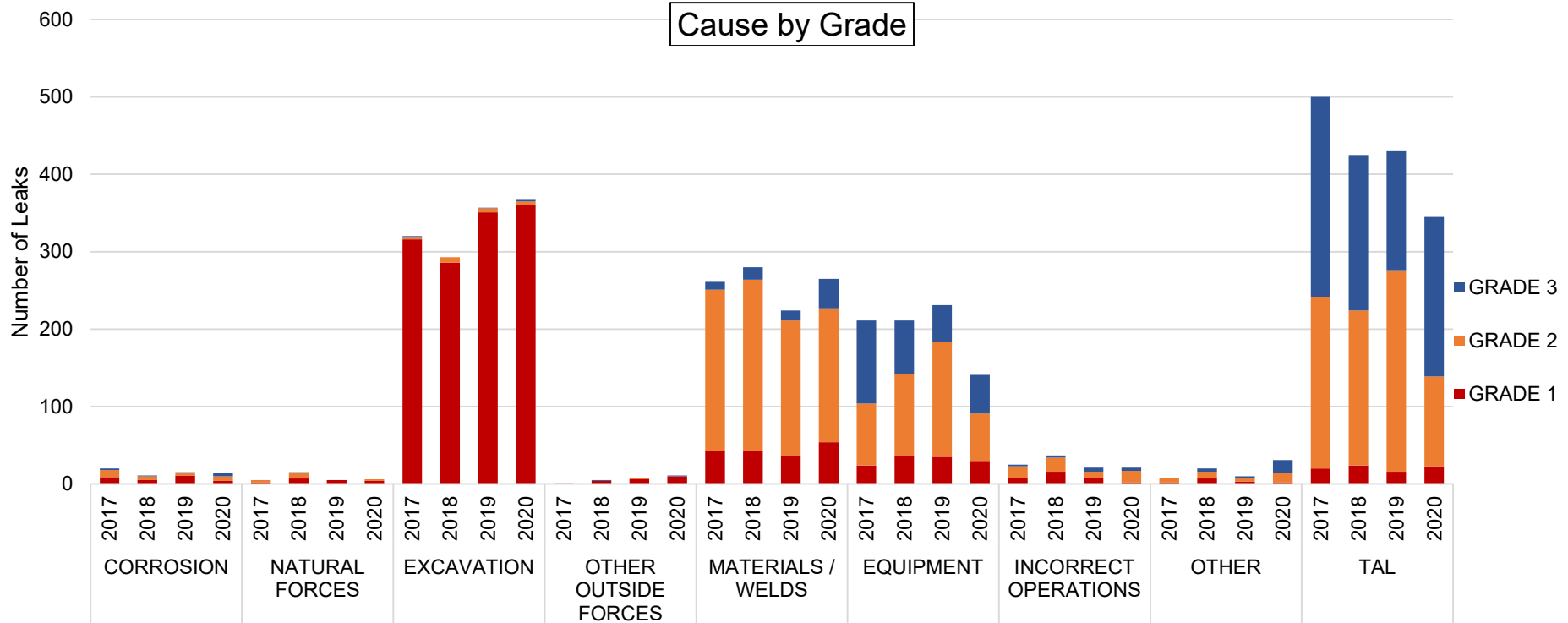
Cast Iron/Ductile Iron

Annual Trend of Miles of Main and Leak Survey Results



Methane Leaks Explained

Primary cause of methane release – Dig-ins



KUB