Summer Committee Meetings

Committee On Gas

Natural Gas Pipeline Locators -- Safety and Damage Prevention Power in Cooperation
NARUC
Summer Committee Meetings
July 24-27, 2016
Federal Reportable Pipeline Incidents Caused by Excavation Damage 2010 through March 31, 2016

Damages

Source: 2010-2015 Annual Distribution Reports. Form PHMSA F7100.1-1
Communications
Depth
Cross-bore
Thank You

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Michigan Public Service Commission
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Spatial Analytics: Optimizing Leak Abatement with Natural Gas Locational Services

NARUC Summer Meetings - July 26, 2016

N. Jonathan Peress
Environmental Defense Fund
A small fraction of sites and components contributes the majority of emissions.
Methane Mapping

Methane Leaks
- Low: 700 to 9,000 liters/day
- Medium: 9,000 to 60,000 liters/day
- High: more than 60,000 liters/day

- Roads Driven
- Pipes
Overlap of Utility Pipes and Observed Data from EDF Methane Mapping

**Observed Readings**
Clusters of readings that contribute to one verified leak of the following size:
- **Yellow**: 700 to 9,000 liters/day
- **Orange**: 9,000 to 60,000 liters/day
- **Red**: More than 60,000 liters/day
- **Gray**: Grid No.
- **Black**: Utility Pipes

Overlap of Utility Pipes and Verified Leaks from EDF Methane Mapping

**Verified Leaks**
- **Yellow**: 700 to 9,000 liters/day
- **Orange**: 9,000 to 60,000 liters/day
- **Red**: More than 60,000 liters/day

- **Grid No.**
- **Utility Pipes**

- **Estimated Total Flow Rate**: 34.6 (+/- 6.0*) L/min
- **Number of Verified Leaks**: 12
- **Miles of Pipe**: 7.4 miles
- **Flow Rate/Mile Pipe**: 4.7 (+/- 0.8*) L/min/mile
- **Rank**: 17

* Represents 95% confidence of true leak rate

These maps only show readings that overlap with utility pipes. Other recorded data is not represented.
### Leak-Prone Pipe / Replacement Grid Flow Ranking

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<th>Grid</th>
<th>Drive Order</th>
<th>No. Verified Leaks in Grid</th>
<th>Total Estimated Flow Rate (L/min)</th>
<th>Measure of Uncertainty</th>
<th>Miles of UPCI Pipe in Grid</th>
<th>Estimated Flow Rate (L/min per Mile)</th>
<th>Measure of Uncertainty</th>
<th>Rank By Total Estimated Flow Rate</th>
<th>Rank by Estimated Flow Rate per Mile</th>
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Total Estimated Flow Rate: 1,705.40

PSE&G using data after applying Hazard Index algorithm to prioritize parcels.
New locational methods and sensors (e.g., Picarro) being integrated by utilities

- PG&E, CenterPoint Energy, EDF UNU analysis finds 3 to 5 times more leaks than standard (e.g., FI)

Integration of Current Systems
- Assessment Tool (Picarro Technology)
- Soil Data
- GIS
- Historical Leak Data
- DIMP Data

Source: CenterPoint Energy Presentation
July 2015
How spatial analytics can empower asset management for gas utility companies  PWC – April 2016

• “By integrating spatial analytics’ predictive modelling with risk-based integrity management programs, utilities can meaningfully improve their asset integrity, investment decisions and deployment of people, processes and technologies.” –Source: PWC
Locating & Marking

48-72 Hours

170 Million/Yr
Locate Requests

One Call

Utility
Gas
Elec
Phone
Water
Sewer
Cable/Fiber

Marked By
70% Contractor
30% In House

2014 Data

Know what’s below. Call 811 before you dig.

THE LEADER IN DAMAGE PREVENTION
If we were an airline...

- **200,000,000 Locates Per Year**
- **560,000 Damages Per Year**
  - Excavator: 280,000
  - Records: 44,800
  - Locator: 95,200
  - No 811 Call: 140,000

**CGA DIRT Report 2015**

Overall 811: ~99%

- Locator: 99.97%
- 95,000
- Like Airline: 99.999997%
- 600

*We would crash 10 Planes / week*

*Need to Be Better Where Risk is High*

*Use Data / Technology To Keep Costs Down*
Tools Available

- **DigCheck Powered by USC**
- Communication
- Audits
- **GOLD SHOVEL STANDARD**
- Qualification
- Education

**High Risk Intervention**

- Excavation Error 50%
- Locating Error 17%
- No 811 Call 25%
- Other 8%

**Graph**

- % of Tickets % of Damages
- Risk: 1 2 3 4 5 6 7 8 9 10 11
- %: 0 5 15 25 38 57 82 93 100

**Stats**

- 50% Excavation
- 8% Locating
- 17% Error
- 25% No 811 Call

**Additional Text**

- Qualification
- Education
- 1.5 TB / Day

**USC**

**THE LEADER IN DAMAGE PREVENTION**
Terabytes of Data to Focus Efforts

Real Time Information “Slice and Dice” Large Data Improves Decision Making
Share Data; Communicate; Educate

Real Time Data
Pictures, Video
Notes

Efficient

Economic
Upside For
Excavators

Street View
Integration
Excavation Methods

Traditional Excavation

GAS

Risk +6x

Directional Boring

GAS
Boots on the Ground Where Required

High Consequence Area

Critical Facility

Risky Excavation

Technology to Identify

Field Action to Mitigate Risk

50% of the Risk in 15% of the Digs
Gas Locating Performance

USIC At Fault Locates/Damage

73274
13000
11251
9932
9010
7744
6552
5846
5107
4317
3691
3670
3579
3417
3080
2975
2913
2616
2336
1921
1914
1702
1630
1517
1137
949

10 x performance

Partnership

THE LEADER IN DAMAGE PREVENTION
Damage Prevention

Robert DeMarinis
NARUC Meeting
July 26, 2016
An International Energy Company

7 million + customers

3,700 MW Electricity Generation

11 Million Customers

UK Electric

UK Gas
Damage Prevention Data

National Grid Damage Rate History

New York State

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<tr>
<td>2015</td>
<td>2.18</td>
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<td>YTD 2016</td>
<td>1.74</td>
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Long Island Root Cause Breakdown
YTD June 2016

- Excavator Error (Third Parties): 41%
- Excavator Error (Company/Contractor): 5%
- Mismark - Locator Error (Locating Personnel): 6%
- Mismark - Maps & Records: 16%
- No Calls: 32%
Long Island "Excavator Error" Damages
Type of Work / Equipment
June 2016
Long Island "No Call" Damages
Type of Work / County
June 2016
Long Island "Repeat Offender"
Excavator At-Fault Damages
June 2016
Damage Prevention Initiatives & Partnerships

• Utility
• Locate & Markout Contractor
• Municipality/Regulator
• One Call Centers
Public Safety Awareness

- Schools
- First Responders
  - E-learning Training system-wide
- Annual PPAP Mailing
  - Consumers along the ROW (IMP)
  - Excavators
  - Emergency Officials
  - Public Officials
- Other Outreach
  - Cross bore safety - plumbers
  - Carbon Monoxide safety
Damage Prevention Initiatives & Partnerships

- 3rd Party Watchguard
- Pole Wraps
- 8-day Patrol Cycle
- Ultrasonic Proximity Sensors
- Drones
Damage Prevention Initiatives & Partnerships

- Damage Prevention Advisor Program
- Ticket Risk Analysis
Damage Prevention Initiatives & Partnerships

- Municipalities
  - Permit Requirement

- Regulators
  - Investigations
  - Repeat Offenders
  - Enforcement

Proposed Permit Language for 753 Requirements

The contractor is cautioned to the possible presence of underground utilities in the project area. Under Rules set forth in 16 NYCRR Part 753 (Code Rule 753), the contractor must obtain a full mark-out of underground utility lines by calling 811 at least 2 business days in advance but no more than 10 business days prior to the start of any work. Failure to have a valid and active markout request that covers you every day of your project may void this permit.
Damage Prevention Initiatives & Partnerships

- Education/Outreach
  - TV, Radio, Seminars
- NY Mets Partnership - 8/11 Day
Damage Prevention Initiatives & Partnerships

Why the Mets?

• Long Island contractors are:
  – 42% more likely than general public to attend a Mets game
  – 5% more likely than the general public to attend a Yankees game

Why SNY?

• MGH and New York 811 conducted an excavator survey and learned:
  – 85% of respondent contractors said they watch television in the evenings
  – Mets broadcasts are among the top-rated primetime programs in the NY market during the spring/summer for Men 25-54
Damage Prevention Initiatives & Partnerships

Dig Safely. New York
Call 811 before you dig
Data Silos
MINE, MINE, MINE
Each Silo Is Only Part of The Story
Damage Reporting System

- NYSEG
- RG&E
- Central Hudson
- National Grid

www.DigSafelyNewYork.com
Damage Collection Software
### NYGAS Near Time Dashboard

Year to Date NYGAS Counts for July 23.

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<th>Self p T</th>
<th>Ex Err</th>
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SAFETY TRAINING

Over the last five years excavator training numbers have increased as the number of damages per 1,000 continue to decrease.

- Red: Excavators Trained
- Green: Damages/1000

www.DigSafelyNewYork.com
Committee On Gas

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