

50UTHWEST GAS CORPORATION

Incident Investigations

Incorporating metering technology as part of investigations







Southwest Gas founded in 1931



2,227 employees

1,417 miles

of transmission main

1 billion cubic feet capacity LNG storage facility

2.18 million customers

55,700 miles

of main and service



• Eric Crow, IAAI-CFI

Who we are....

Natural Gas Incidents

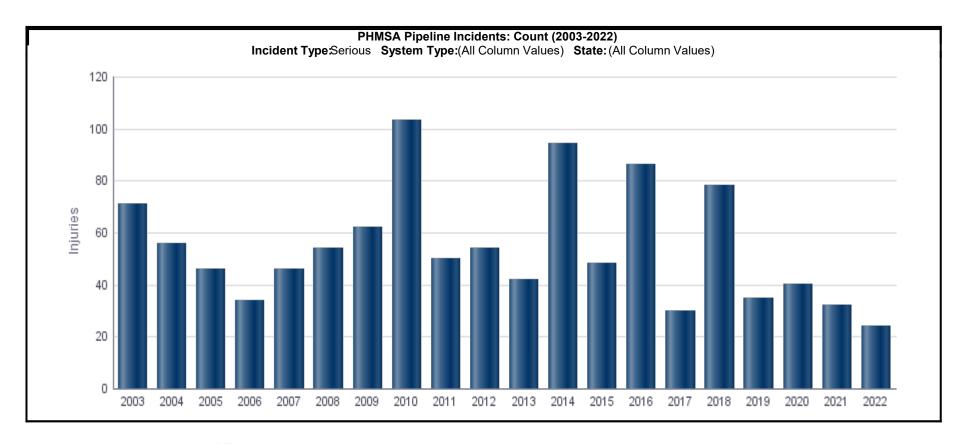
Types of Natural Gas Incidents

- Energy Theft
- Customer complaints
- Facility damages
- Fires & Explosions

CALL 811 BEFORE YOU DIG!



Natural Gas Incidents



Natural Gas Incidents





• NFPA 921 Guide for Fire Investigations

NFPA 54 Fuel Gas Code

ASTM standards

Investigation Essentials

• Underground Leak Surveys

• Meter (Clock) Test /Pressure drop test

• Pressure Test (Underground Service Line)

• Odorant Test

• Leak flow test (Houseline)

Appliance inventory



- BTU Cubic Feet (CF) Therm
- Common Gas Appliances
 - Furnace
 - Range/Oven
 - Water heater
 - Clothes Dryer
 - Tankless water heater
 - Pool heater

- 100,000 BTUs/hr 100 CFH 1 therms
- -35,000 BTUs/hr 35 CFH 0.35 therms
- -40,000 BTUs/hr 40 CFH 0.40 therms
- -22,000 BTUs/hr 22 CFH 0.22 therms
- -200,000 BTUs/hr 200 CFH 2 therms
- -400,000 BTUs/hr 400 CFH 4 therms

How can metering technology aid investigations?

- Record normal consumption
- Record abnormal consumption
- Provide historical usage data
- Houseline conditions
- Revolutions vs. CFH





Meter Technology

- 40G
- 100G
- 500G
- Intelis









- 40G technology
 - Not data logging
 - Stores current index data
 - Customer usage
 - Handheld readings

What the 40G can reveal to an investigator.





- 100G & 500G Technology
 - Data logging
 - Stores current index data
 - 40 days of customer hourly usage
 - Handheld & Remote readings







- Intelis Meter Technology
 - Data logging
 - Stores current index data
 - 40 days of customer hourly usage
 - Can provide 5-minute interval readings
 - Handheld & Remote readings
 - Auto shut off
 - Testing





- Importance of a process
- Consistency
- Verification
- Collection
- Preservation
- Analysis





- Identifying the value
 - Company & Department Support
- Identifying stakeholders
 - Teams needed for implementation
 - IT, IS, Risk, Operations, Legal
 - External experts
- Download Process





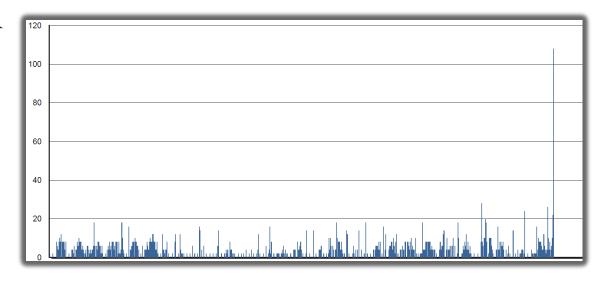


- Evidence Collection
 - Written procedure
 - Challenges
- Evidence Preservation
 - Handling
 - Storage
 - Documentation





- Communication, Training and Education
 - Internal Stakeholders
 - Experts
 - External Fire Investigators
 - Joint scene inspection
 - Legal

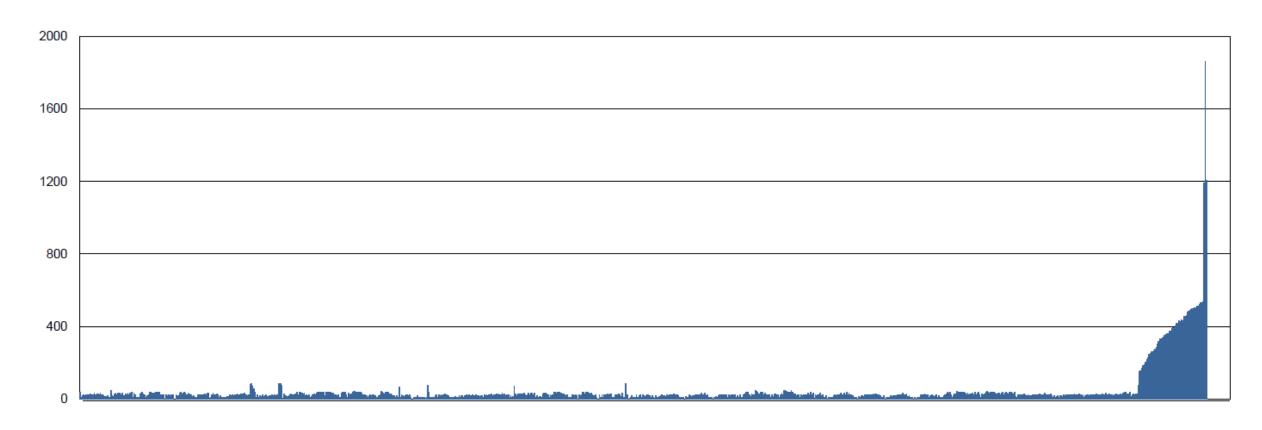


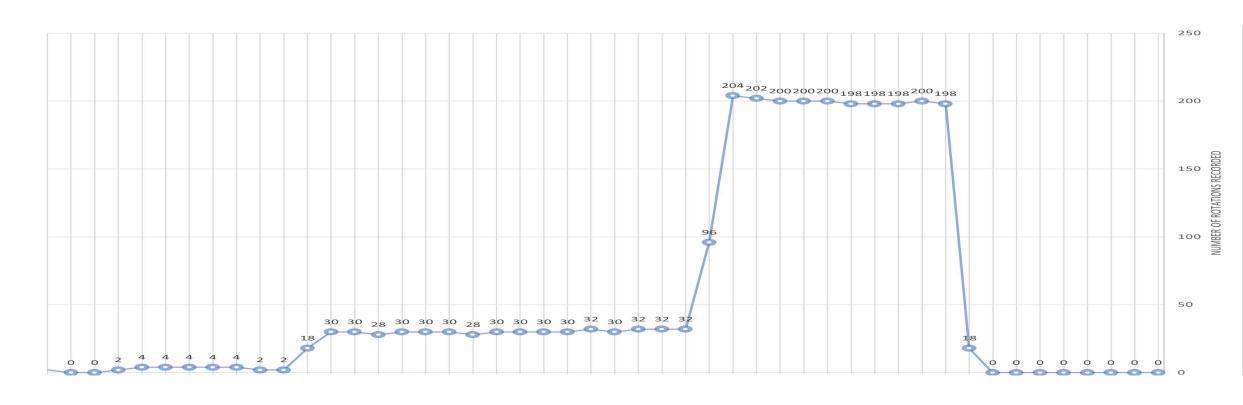


Challenges and Successes

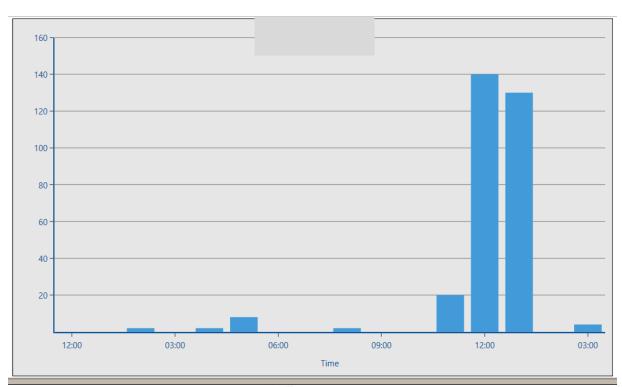
- Understanding the technology
 - Correlating data to scene findings
 - Conversions
- Communication to stakeholders
- Communicating information to public investigators and interested parties
- Educating Staff Management of change
- How to preserve the data



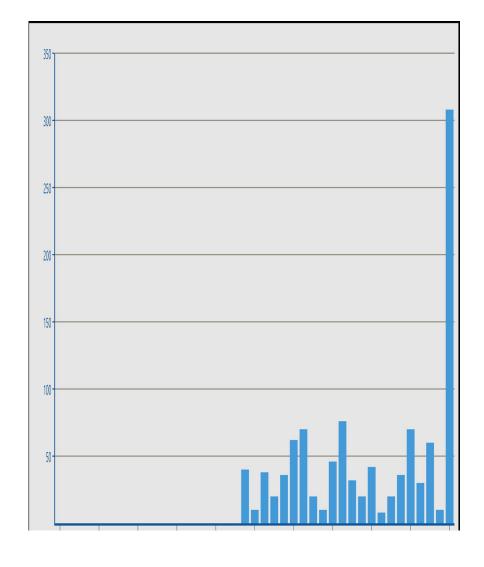








CALL 811 BEFORE YOU DIG!





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Summary

- Types of natural gas incidents
- Resources for investigating incidents
- Use of ERT/data logging technology in investigations
- Understanding of ERT data
- Process implementation
- Challenges and solutions

