U. S. Department of Transportation

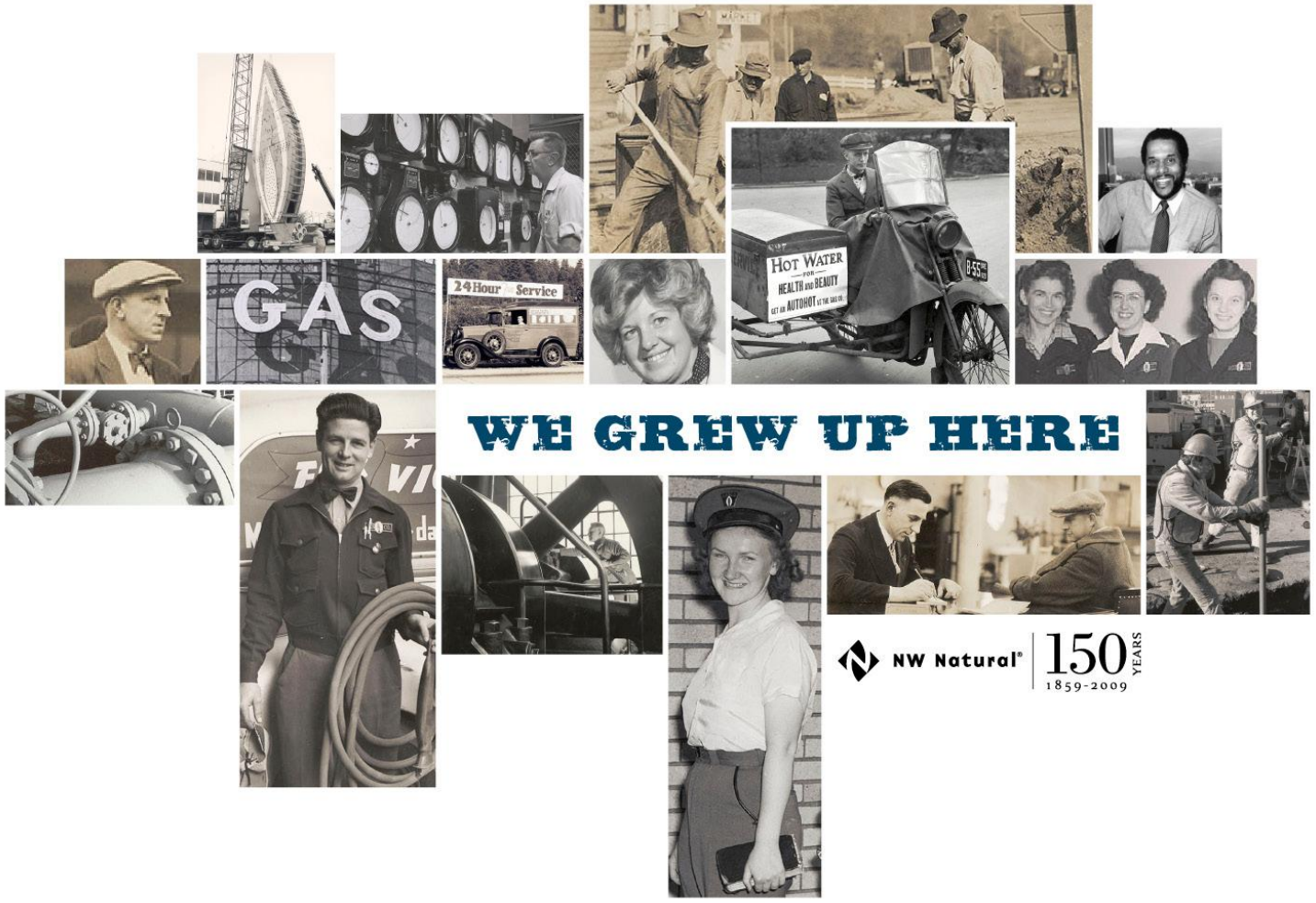
Pipeline and Hazardous Materials Safety Administration

Large Excess Flow Valve Group Meeting
June 23, 2009
Arlington, VA

Bruce L. Paskett P.E.
Principal Compliance Engineer

NW Natural®
We grew up here.

150 YEARS
1859-2009



NW Natural® | 150 YEARS 1859-2009

NW Natural Company Background

- Company founded in 1859
- Operate in Oregon and SW Washington
- Serve approximately 670,000 residential, commercial and industrial customers
- Designed, constructed, own and operate 609 miles of transmission main and 21,000 miles of distribution mains and services
- #1-2008 J.D. Power and Associates Gas Utility Residential Customer Satisfaction Study

NW Natural® We grew up here. | 150 YEARS 1859-2009

NW Natural and Pipeline Safety

NW Natural is committed to the Safe, Reliable and Cost Effective delivery of natural gas to our customers.

NW Natural®
We grew up here.

150 YEARS
1859-2009

NW Natural and Pipeline Safety

Pipeline Integrity Management Programs-

- Cast Iron Replacement Program-1983 to 2000
- Bare Steel Replacement Program-2001
- Natural Forces (Geohazard) Program-2001
- Transmission Integrity Management Program-2002
- Distribution Integrity Management Program-1983

Excess Flow Valve Background

- Excess Flow Valve Rule (1998)- Required customer notification of availability of EFVs for all new or replaced single family residential services
- DIMP Phase 1 Report-Four study groups concluded that EFVs can be a valuable risk mitigation tool, but should not be mandated
- 2006 PIPES Act-Congress mandated EFVs only for new and replaced single family residential services after June 1, 2008
- DIMP Rule NOPR-Requires operators to identify threats, prioritize risks, and implement measures to address risks
- GPTC DIMP Guidance suggests that operators consider the expanded use of EFVs as a possible additional / or accelerated action

EFV INSTALLATION LOCATION

NW Natural Experience With Excess Flow Valves

NW Natural began installing EFVs on all new and replaced single family residential services in 1999

- Company has installed over 160,000 single family residential EFVs
- Company has installed nearly 1,000 large capacity EFVs (2000 SCFH @ 10 psig) on single family residential services with large loads
- Company has considered, but not installed, EFVs on commercial or industrial applications due to concerns about installation cost and reliability of service

Key Learnings From Single Family Residential EFVs

- When properly sized, engineered and installed, EFVs function as designed if conditions remain static
- Excess Flow Valves require considerable engineering to size the EFV / service capacity to the customer's load
- LDCs may not know the ultimate load at the time of EFV installation
- May require a larger diameter service line, which materially impacts cost (+ $ 500)
- EFVs can't distinguish a major leak from a customer load of the same size
- EFVs are not designed to protect from a houseline failure (downstream of the meter)

Key Learnings From Single Family Residential EFVs

- No identifiable avoided incidents on NWN system
- Inability to clean service lines of foreign matter
- Excavation damages without appropriate notification
- An incorrectly sized EFV does not function appropriately (Either no trip or false trips)
- Added customer loads result in false closures (tank-less water heater or emergency generator)
- Expensive and / or extremely difficult to remedy incorrectly sized EFVs due to excavation costs and municipal restrictions on street openings

Issues With Large Capacity EFVs

Customers want Safe, Reliable Service

- Operator doesn't know load at time of service installation
- Multi-family, commercial and industrial customers have far more load variability, routinely adding equipment / loads without notifying gas company (new boiler, process load, seismic valve)
- Commercial establishments subject to frequent changes of ownership, consumer product, gas equipment and load making the EFV unsatisfactory
- An incorrectly sized EFV does not function appropriately (Either no trip or false trips)
- Expensive and / or extremely difficult to remedy incorrectly sized EFVs due to excavation costs and municipal restrictions on street openings

Issues With Large Capacity EFVs

Case Study-Intel

- Continuous operation
- Adds value as the chip moves down the process
- Natural gas used for HVAC, process control and burning VOC gases
- Customer installs redundant site facilities
- Service interruption causes $ 5-10 million loss
- EFV installation cost ≈ $ 40,000
- Customer routinely adds new equipment, loads without notifying gas company
- Customer testing of plant equipment (e.g. seismic valves, boilers etc)

Summary of Large Capacity EFV Issues

- EFVs only work for significant service line breaks
- Larger diameter service lines are less susceptible to a complete line break
- EFVs can't distinguish a major leak from a load
- EFVs are not designed to protect from houseline failures
- Multi-family, commercial and industrial customers have far greater load variability and the risk of false trips

Summary of Large Capacity EFV Issues

- Commercial establishments are subject to frequent changes of ownership, consumer product, gas equipment and load, making the EFV unsatisfactory
- Financial or customer reliability impacts of false EFV trips may be extreme for commercial and industrial customers
- The cost to install a replacement EFV may be $ 5-20,000 **IF** the municipality allows the street to be cut

Large Capacity EFV Recommendation

Under the Distribution Integrity Management (DIMP) Rule, operators will perform a risk evaluation of their distribution systems and implement appropriate measures to address risk.

Risk Management Measures

- Effective leak management program (LEAKS)
- Effective excavation damage prevention program
- EFVs on service lines to single family residential customers

Large Capacity EFV Recommendation

EFVs on multi-family, commercial and industrial service lines should be considered by operators as a risk management tool and should not be mandated

Large Capacity EFV Recommendation

Continue the implementation of effective **State** excavation damage prevention programs, including the nine key elements as defined in the Pipeline Inspection, Protection, Enforcement and Safety Act of 2006