EFV GROUP MEETING June 23, 2009

Manufacturers Panel

EFV HIGHLIGHTS

- More than 8 MILLION EFVs installed
  - Single service, Single meter
  - Branch service, Multi-meter
  - Commercial
- Adds about 1% to the cost of a service line installation
- Type of Operators being supplied
  - Local Distribution Companies
  - Municipal Utilities
  - Master meter operators

Operating Limitations/Anomalies

- Application may be technically possible, but is it feasible?
- Fouling by Contamination
  - Viscous contaminants
  - Liquids
  - Dry contaminants not generally an issue
- Improper Sizing
- Widely Fluctuating Loads
- Low System Pressure
- Attention to O&M Procedures

Performance Standards

- **MSS SP-115 in 1995 – Design, Performance & Test**
- **US DOT 192.381 in 1996 - Performance**
- **ASTM F1802 in 1997 – Test Method**
- **ASTM F2138 in 2001 – Standard Specification**
  - **Pressure**
  - **Temperature**
  - **Trip Flow**
  - **By-pass flow (permissible leakage)**
  - **Design and Production Testing by Manufacturers**

PROPOSED EFV INSTALLATION REQUIREMENT – "DIMP"

- EFV must conform to DOT 192.381
- NPRM Subpart P (§192.1011)
  - "Service lines serving single family residences"
  - 10psig or greater
  - Operator experience with contaminants
  - Commercially available
  - Cannot interfere with O&M activities

UMAC High Volume EFV Approach

Manufacturers Panel

High Volume EFVs

- **Single Meters**
- **Multiple Meters**
- **Branch or Split Services**
- **Commercial Applications**

Configurations

- Sizes
  - ½ CTS to 2 IPS
- Service Line Inlet Pressures
  - 5psig to 125 psig
    - EFV rated to 1,000 psi
- Flow Capacity Range
  - 400 CFH to 5,500 CFH at 10 psig
  - 10,000 CFH in final design phase
- Other Sizes and Capacities –Special Order

EFV Sizing Considerations

1. MINIMUM Operating Design Pressure
2. Consider pipe diameter and length when sizing EFV
3. Consider Anticipated Design Load
   - Use Customer Meter Plate Rating
     - EFV Trip at 20% Over Plate Capacity
   - Consider Anticipated Customer Load
4. Consider Future Load Growth Potential

EFV Sizing Example
SINGLE FAMILY Residential

- Service: ½ CTS x 60′
- MINIMUM DESIGN INLET PRESSURE = 10 psi
- Meter: 275 CFH
- Sizing: 275 + 20% = at least 330 CFH
- EFV: Series 400 CFH Minimum Shut-off flow
- FIRST INSTALLATIONS = 1974

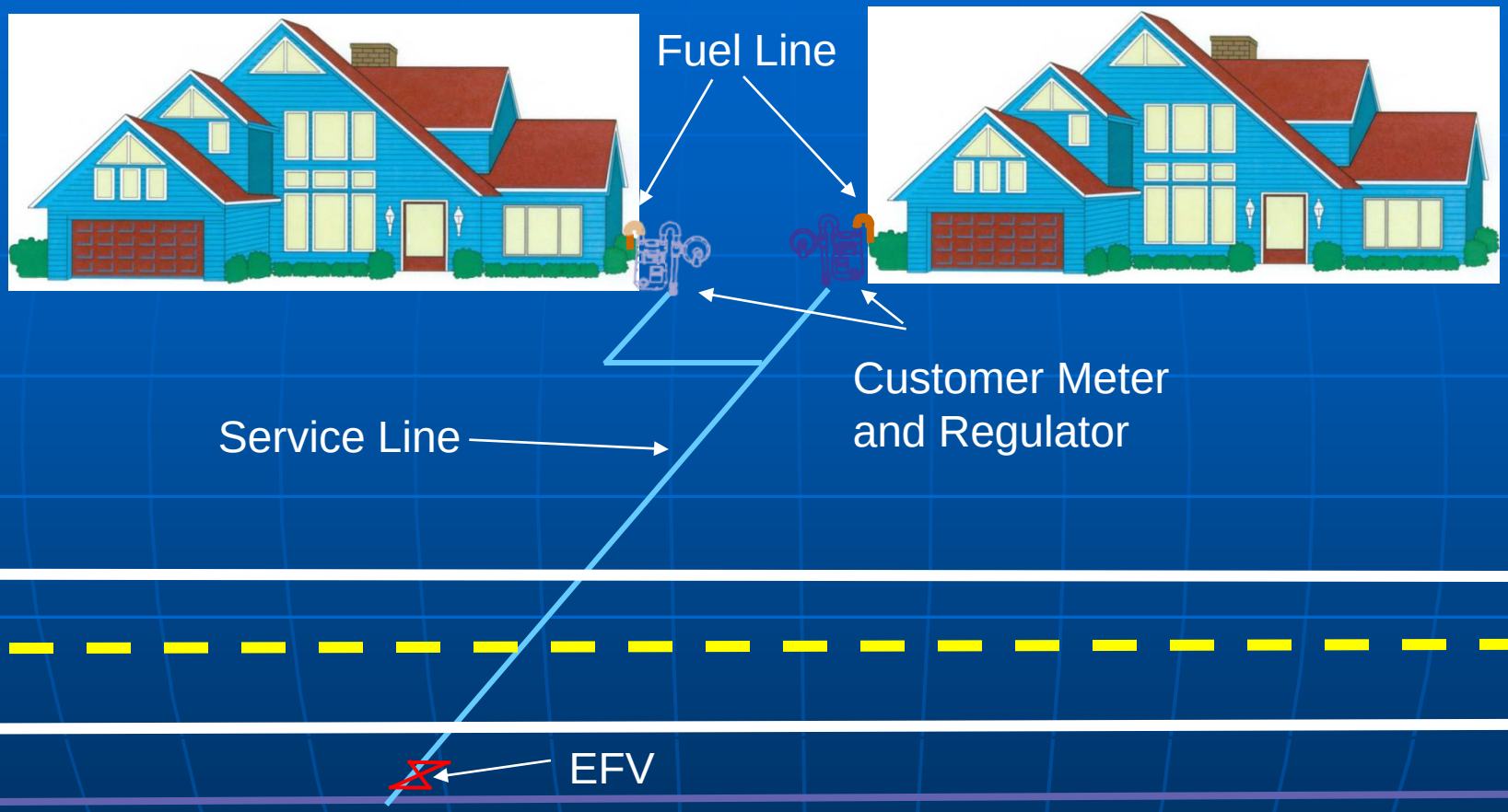
“Mother-Daughter” (Duplex)
MULTI – FAMILY
Branch Service

- Service: 3/4 IPS x 50’
- (2) x 275 CFH or (2) 425 CFH meters
- MINIMUM SERVICE Inlet Pressure: 5 psig
- Application Criteria: 1 psig maximum pressure drop at 1200 CFH across the entire service
- EFV: UMAC Series 1800
- FIRST INSTALLATIONS = 1988

EFV Sizing Example SINGLE FAMILY LARGE Residential

- **Service: 1 CTS x 150’**
  - **Minimum Service Line Design Pressure = 10 psi**
- **Meter: 630 CFH**
- **Sizing: 630 + 20% = at least 756 CFH**
- **EFV: SERIES 1100 CFH**
- **FIRST INSTALLATIONS = 1990**

EFV Installation Options – Branch Services to Single Family homes



EFV Sizing Example
Commercial

- **Service: ½” IPS x 90’**
- **Minimum service line pressure = 10 psi**
- **Meter: 2 x 175CFH**
- **Sizing: 350 + 20% = at least 420CFH**
  - **Future Load Considerations**
- **UMAC EFV Recommendation: Series 550**
- **FIRST INSTALLATIONS = 1993**

EFV Sizing Example
Commercial

EFV Sizing Summary

1. MINIMUM Operating Design Pressure
2. Consider pipe diameter and length when sizing EFV
3. Consider Anticipated Design Load
   - Use Customer Meter Plate Rating
     - EFV Trip at 20% Over Plate Capacity
   - Consider Anticipated Customer Load
4. Consider Future Load Growth Potential

Summary of UMAC EFVs

- **Solid Operating Track Record**
  - **35 years**
- **25% of Production are High Volume EFVs**
- **Far along the experience curve with both single family service and branch/ multi-service applications**
- **Experience with Commercial Applications more limited**
- **Support of operator's right to choose proper locations**