

# Relief Valve & Regulator Maintenance

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# What maintenance is required?

## ➤ 49 CFR - Part 192

- 192.739 - Pressure limiting and regulator stations: Inspection and testing
- 192.743 –Pressure limiting and regulator stations: Capacity of relief devices

## ➤ NFPA 58 – 2004 Edition

- Minimal requirements for inspection and maintenance
- Annex E – Pressure Relief Devices

## ➤ Standards

- UL 144 – Standard for LP Gas Regulators
- NPGA # 306 - LP Gas Regulator and Valve Inspection and Maintenance
- NPGA # 139 - Protection of pressure relief valves

## ➤ Manufacturer's Instructions and Bulletins

- Rego – Sherwood - Fisher



# Regulators

## Major Factors to determine “Life” of equipment

- Proper installation in a correct application
- Corrosion of metal parts used
- Aging of rubber parts
- Frictional wear
- Abuse
- Foreign Material



# Regulator Inspection



- Underground Installations
  - Every Time the Container is filled
- Corrosive Atmospheres
  - At least once a year, more if required
- All other Applications
  - Once each year

# Regulator Inspections

- Items to review during inspection:
  - Vent area is clear and fully open at all times. Verify screen is in place and clean
  - Remove bonnet cap and inspect spring for corrosion
  - Shut down system – remove and inspect the spring and the inside of the bonnet with a strong flashlight
  - Examine exterior of housing and wrench flat areas for stress/cracks on housing or connections

# Regulator Manufacturer Replacement Recommendations

- Fisher
  - Depending on regulator model and age – 15 or 20 years
- Rego
  - Regulators manufactured:
    - Before 1995 – 15 Years
    - After 1995 – 25 Years
- Sherwood
  - All regulators – 25 years

# Relief Valves

- Major Factors to determine “Life” of equipment
  - Water/Ice Accumulation
  - Corrosion
  - Dirt – Debris
  - Damage
  - Normal Aging



# Relief Valve Inspections



- “Relief valves should be inspected each time the container is filled but no less than once a year. If there is any doubt about the condition of the valve, it must be replaced.”

# Relief Valve Maintenance

## ■ Items to check during inspection:

### ➤ Rain Cap -

- Secure and proper fit. Replace damaged or missing caps immediately

### ➤ “Weep Hole”

- Clear of dirt, debris, insects, sticks, etc. Check direction hole is pointed

### ➤ Corrosion

- If relief valve spring coating is cracked or chipped, REPLACE THE VALVE

### ➤ Physical Damage

- If there are any indications of damage, REPLACE THE VALVE

### ➤ Tampering or Readjustment

- Valves are factory set. Any indications of tampering, REPLACE THE VALVE

# Relief Valve Replacement

- “Tests have been conducted on small LP-Gas relief valves of all the U.S. valve manufacturers. Valves over 10 years were removed from service and tested to determine at what pressure the valves discharged. In many of the valves, the pressure required to open the valve exceeded the set pressure. Because of the critical importance of proper functioning of relief valves, common sense and basic safety practice dictate that small relief valves should be replaced in about 10 years.”

Source: Engineering Controls International, Inc.

# Is your Company policy Proactive or Reactive Regarding Maintenance?

- It will cost too much
- We don't have enough time or manpower
- There is no code requirement for this type of maintenance
- We've never had a problem with them



# Do you see what I see?



# Maintenance Considerations

- Develop a program to evaluate existing regulators and relief valves in your system including age of product
- Train ALL employees to identify problems
- Correct problems immediately when discovered
- Establish a reporting and follow-up process for problems that cannot be immediately corrected
- Checklist for documentation of inspections
- Consider your company's responsibility to evaluate the useful life of regulators and relief valves and to follow the manufacturer's recommendations for replacement

**PLEASE DON'T**



**SET THEM AND FORGET THEM!**

**Safety isn't expensive – it's priceless!**