Hazard Awareness

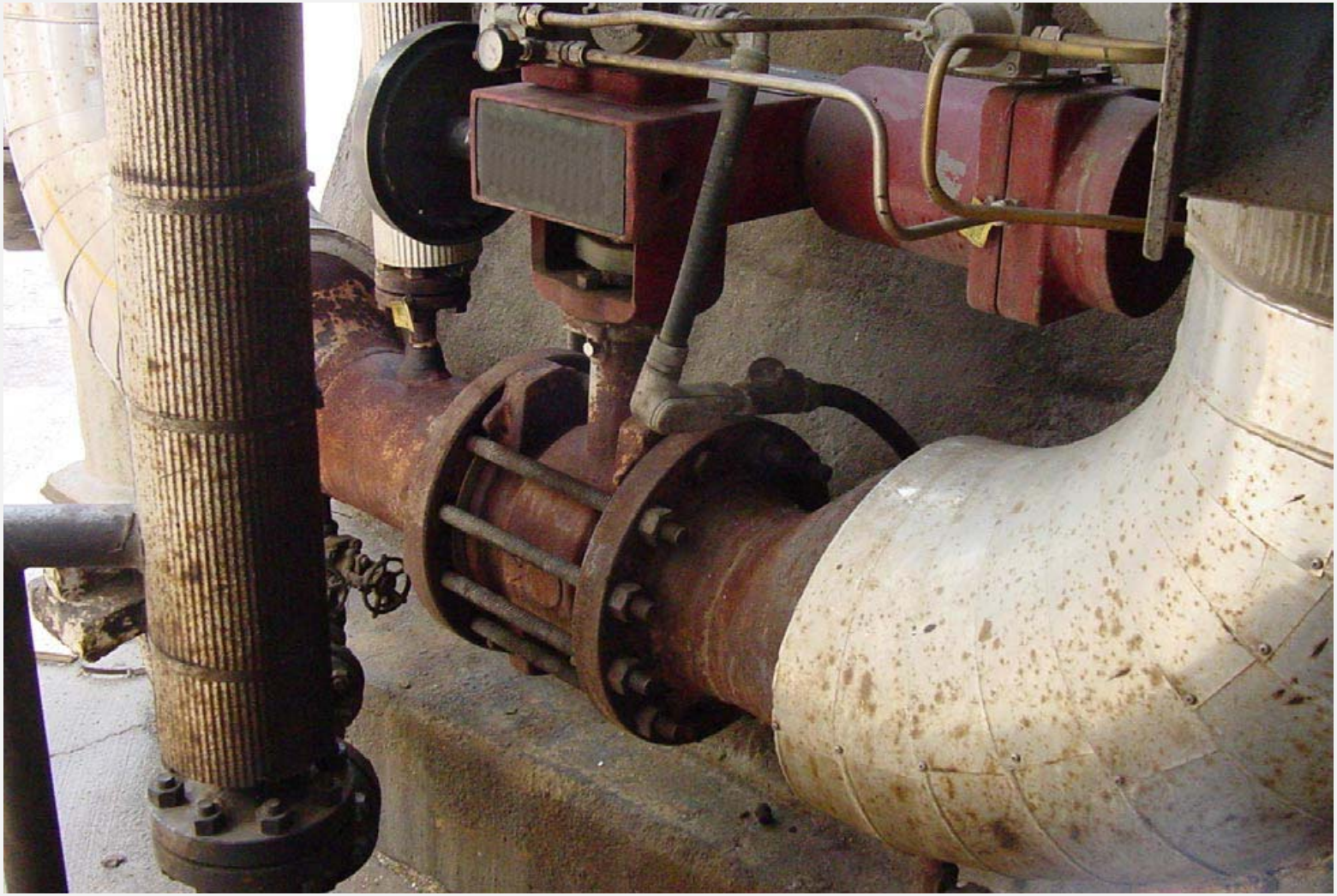
Hazard Identification and Correction
(to help ensure a safe work place)

Contributed by:

Luke Kittmer
Process Safety Engineer
NOVA Chemicals Corp.

Missing Isolation

Fire Risk (Wafer-Style Valve)



Why Hazard Identification is Important

It makes people aware that protection from the process hazard has been weakened

- Reminds people of past incidents and near misses
- Addresses deficient designs (knowledge from past incidents missing)
- Facility changes are not always managed properly (FCM)
- Equipment deteriorates with time
- Unsafe equipment / actions become “normal” over time

Incidents can be avoided with early detection and correction

“Temporary” Permanent Installation

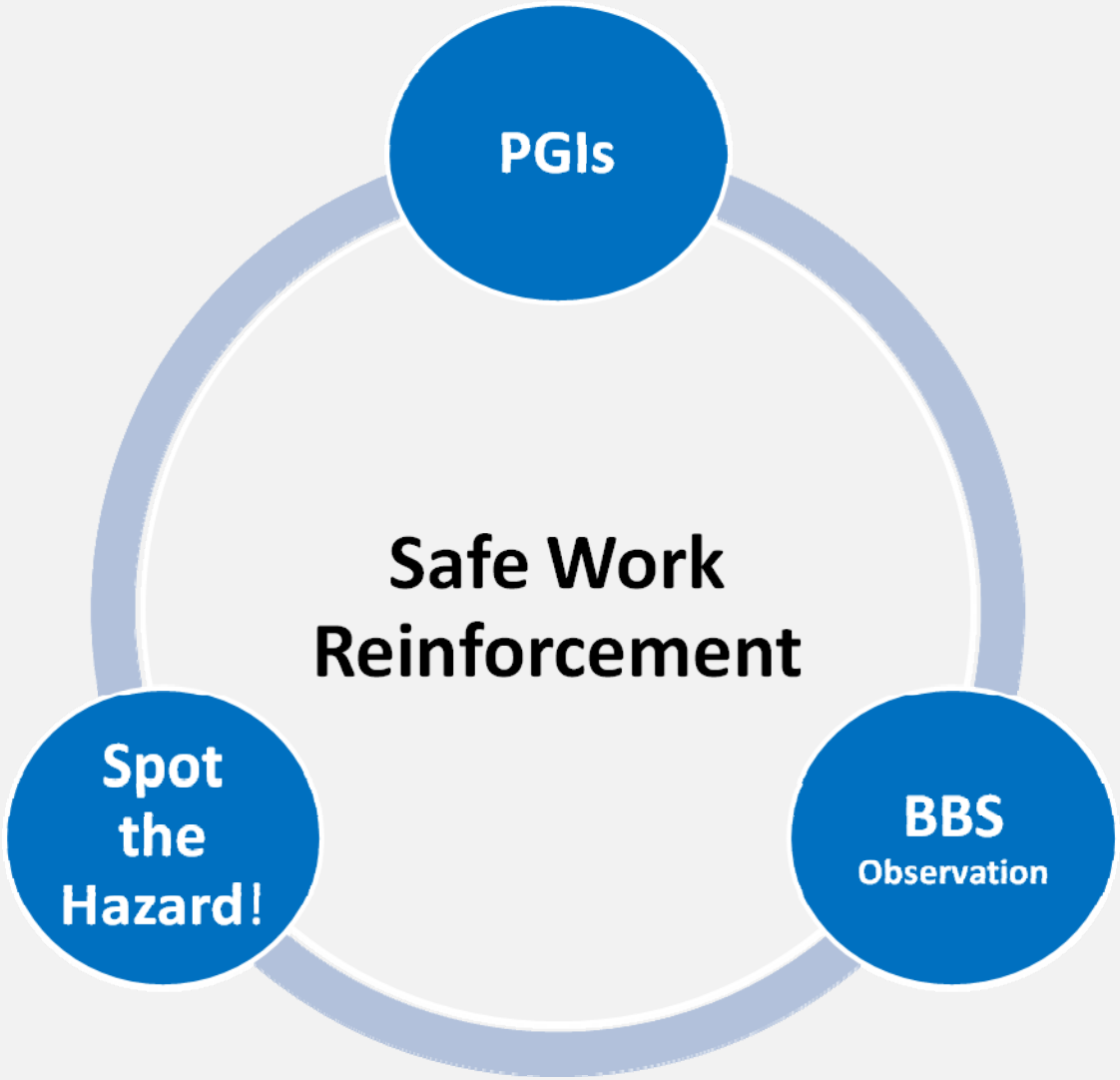
Normalizing the Abnormal

Key Elements of Hazard Management

Process safety awareness is reinforced through:

1. Process Safety Training / Experience
2. Hazard Identification
3. Risk Assessment
4. Problem Solving
5. Employee Buy-In / Participation

Hazard Identification Programs



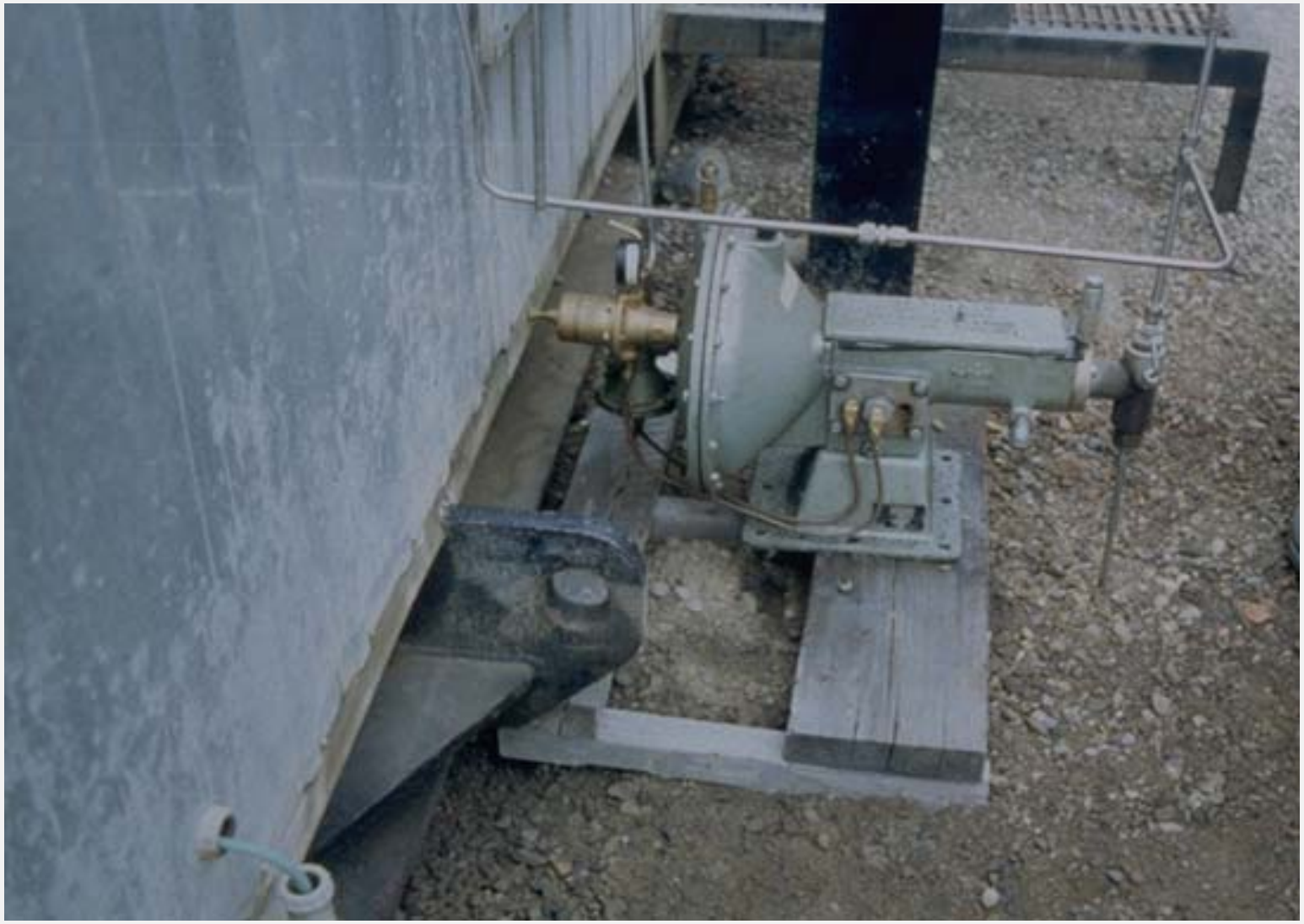
Important Concepts

1. **Leadership Commitment and Expectations**
   - Through example
   - Be proactive – fix the problem before it becomes serious
   - Timely communication – speak up
   - Results oriented – manage the risk and educate
2. **Basis**
   - No operating areas are excluded
   - No operating area singled out
   - We are all responsible for Process Safety
3. **Credibility and Collaboration**
   - Operations confirm risk
4. **Feedback and Recognition**
   - Solve the problem
   - Implement the solution
   - Recognize achievements

What to look for in the field…

- Design deficiencies
- Constructions deficiencies
- Facility change issues
- Equipment / structure deterioration
- Active protection system impairment
- Passive protection system impairment
- Unsafe human activities (shortcuts)

Design Deficiency



Decommissioning Deficiency

Winterization

Improper Isolation, No Containment

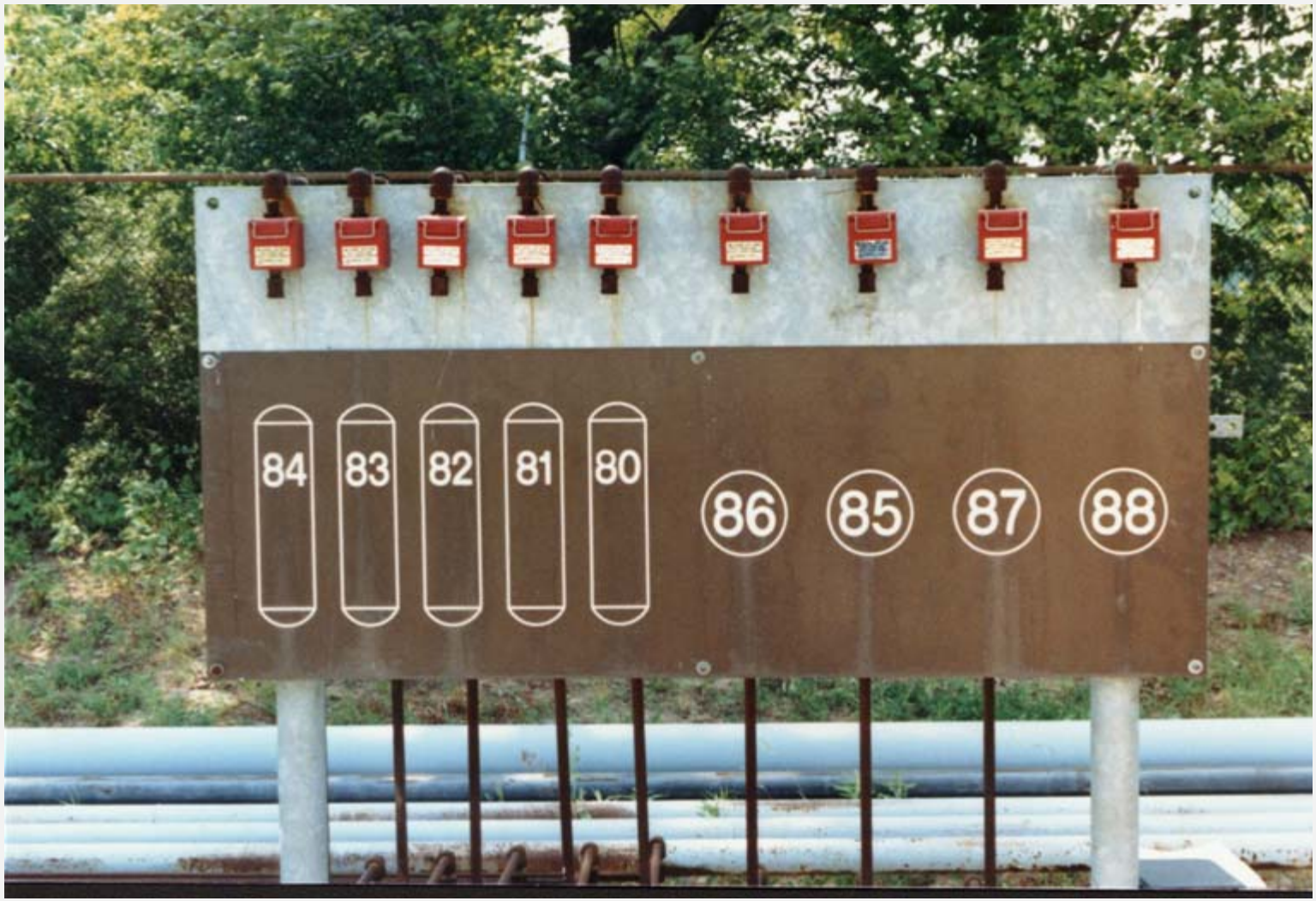
Fire Hazard / Slipping Hazards

Keep an eye out for...

- Fixed Protection Issues:
  - Fixed Deluge Systems
  - Sprinkler Systems
  - Hydrants
  - Detectors and Alarms
  - Isolation and Shutdown Devices
  - Instrumentation & Control
  - Fire-fighting and Emergency Response

Faulty Safeguarding

Confusing Design



Keep an eye out for...

- Passive Protection Issues:
  - Orientation & Layout
  - Equipment Spacing
  - Drainage & Diking
  - Fireproofing & Insulation
  - Construction Design
  - Protective Barriers

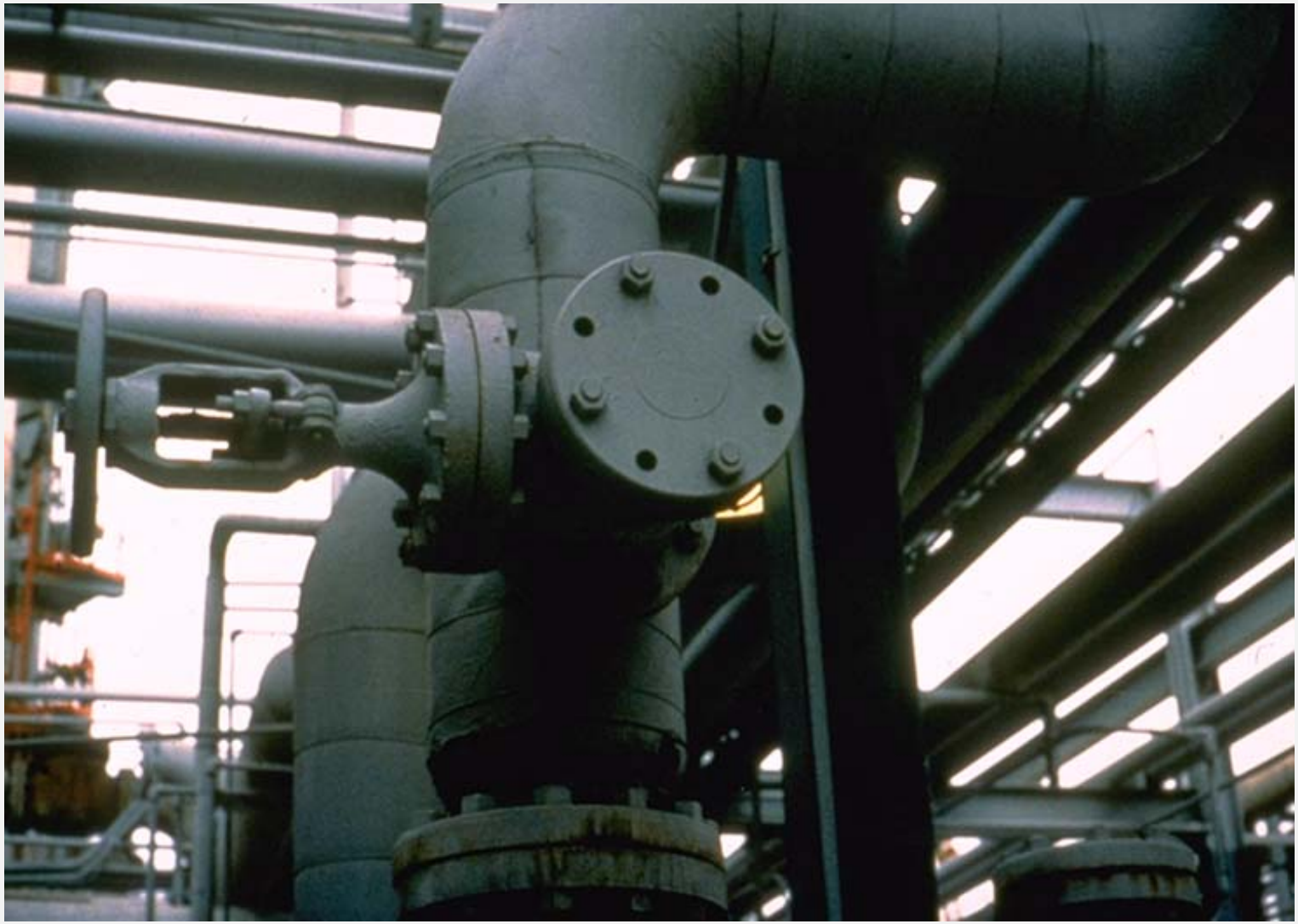
Fireproofing Deficiency

Passive Protection Impairment

Keep an eye out for...

- Equipment Integrity:
  - Bolting and Plugging
  - Vacuum / Pressure Protection
  - Materials (Cast Iron, Brass, Plastic, Corrosion, Hoses)
  - Venting
  - Piping & Supports
  - Valves
  - Tanks and Storage vessels

Equipment Integrity

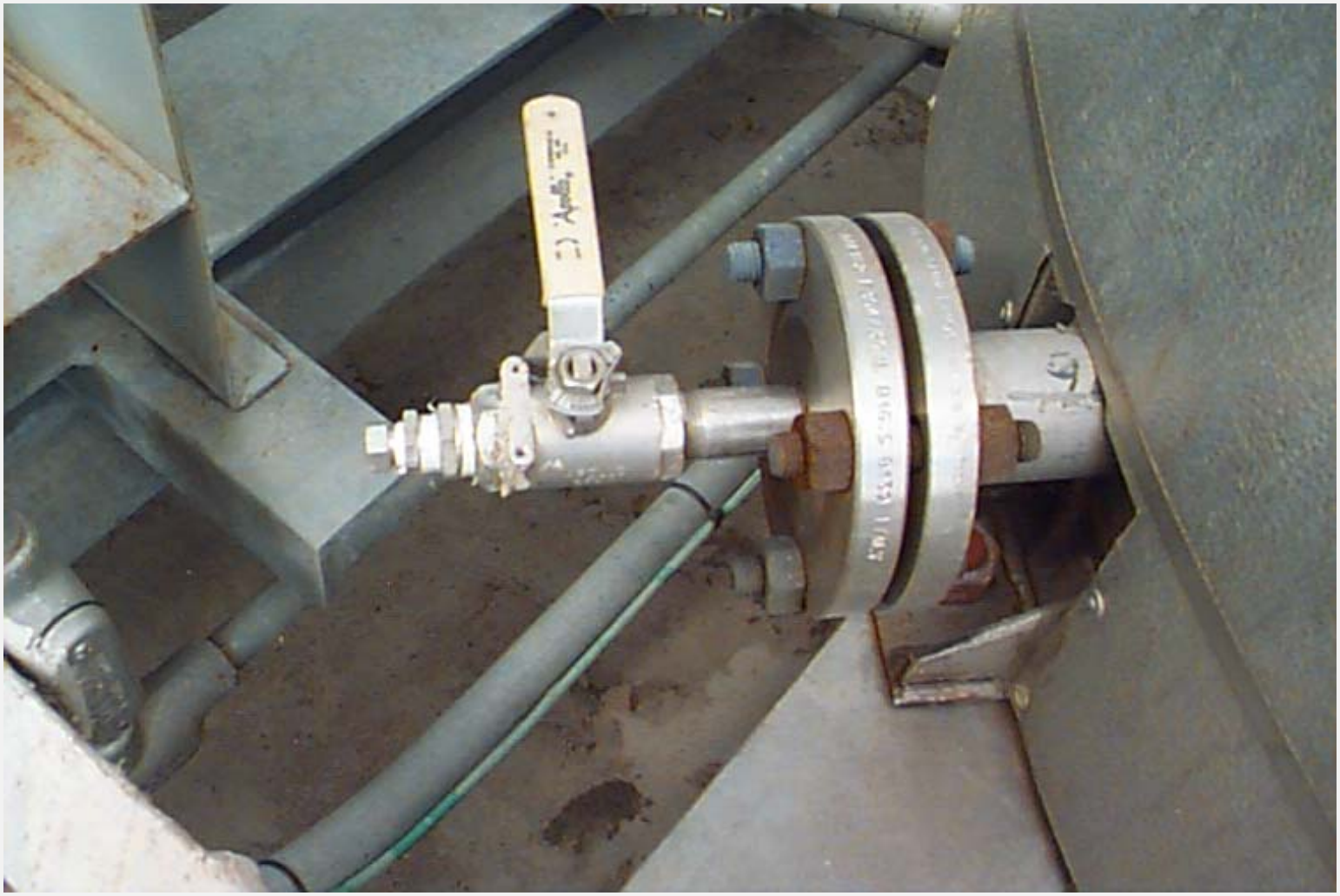


Corrosion Under Insulation

Keep an eye out for...

- Human mistakes:
  - Construction deficiencies
  - Design deficiencies
  - Inadequate management of change (e.g. FCM process)
  - Unsafe behavior or shortcuts

Use of Stacked Fittings



Exposed Wiring / Unsealed Conduit

The Keys to Success

- Speak up
  - If something is wrong, make sure it is communicated
  - If you are not sure if something is wrong, ask
- Participate and learn (PGIs, BBS, Spot the Hazard)
- Look for help
- Help design out the problem
- Ensure you have proper, up to date training
- Make safety a part of your work culture

Hazard Awareness

Hazard Identification and Correction
(to help ensure a safe work place)

Contributed by:

Luke Kittmer
Process Safety Engineer
NOVA Chemicals Corp.