

Region VI Episodic Release Reduction Initiative

Voluntary effort among

- the U.S. EPA
- the Louisiana DEQ
- the TNRCC
- thirteen petroleum refining and chemical-producing facilities

Industry Participants

- Chevron Phillips Chemical
- Dow Chemical
- ExxonMobil Chemical
- Equistar Chemicals
- Cytec Industries
- PPG Industries
- Shell Chemical
- Diamond Shamrock
- ExxonMobil Refining
- Motiva Enterprises
- Phillips Refining
- Valero Refining

Objectives

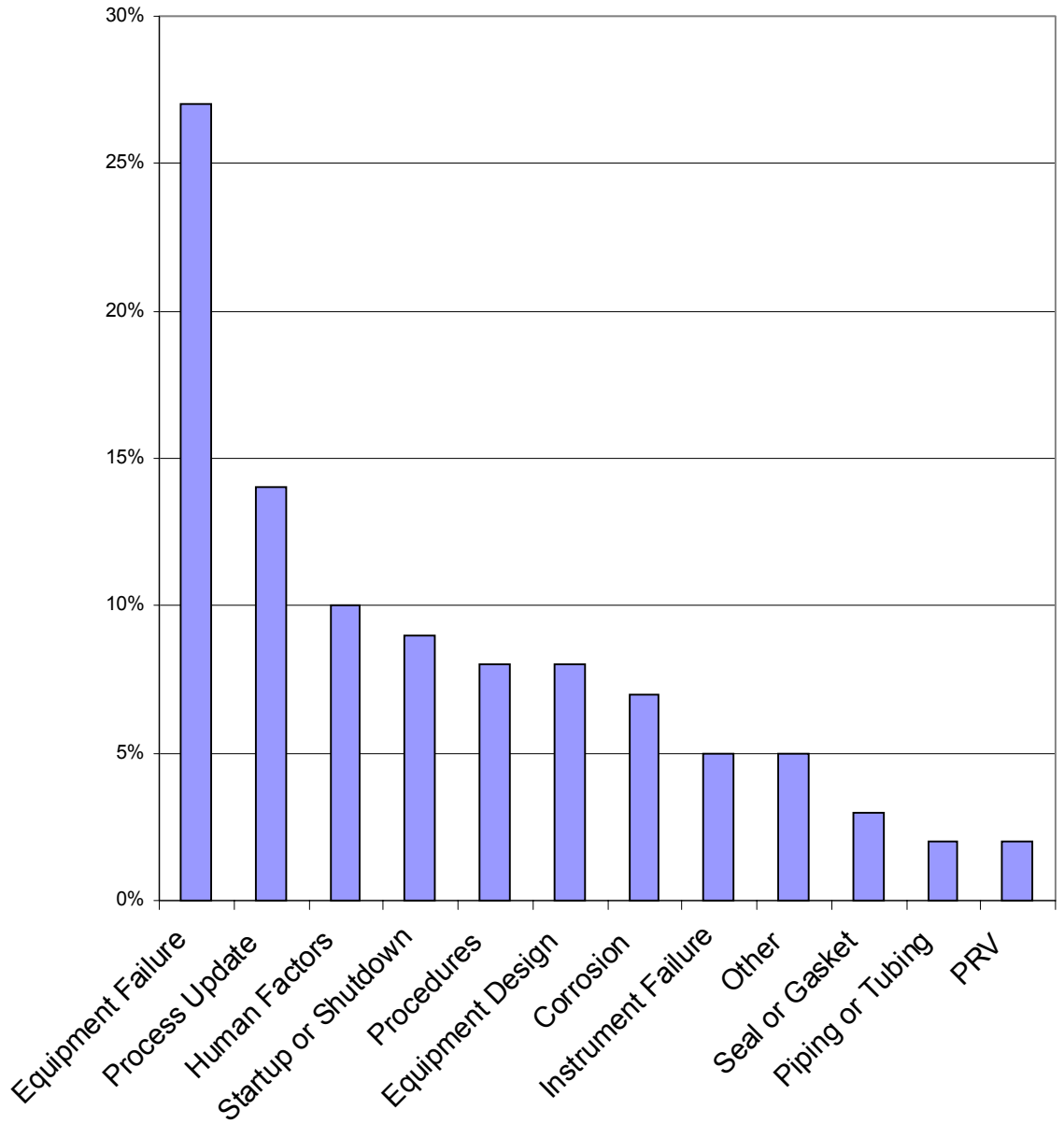
- Evaluate and implement methods for
 - reducing emissions
 - measuring and reporting progress
 - information sharing.

4-step process to reduce emissions

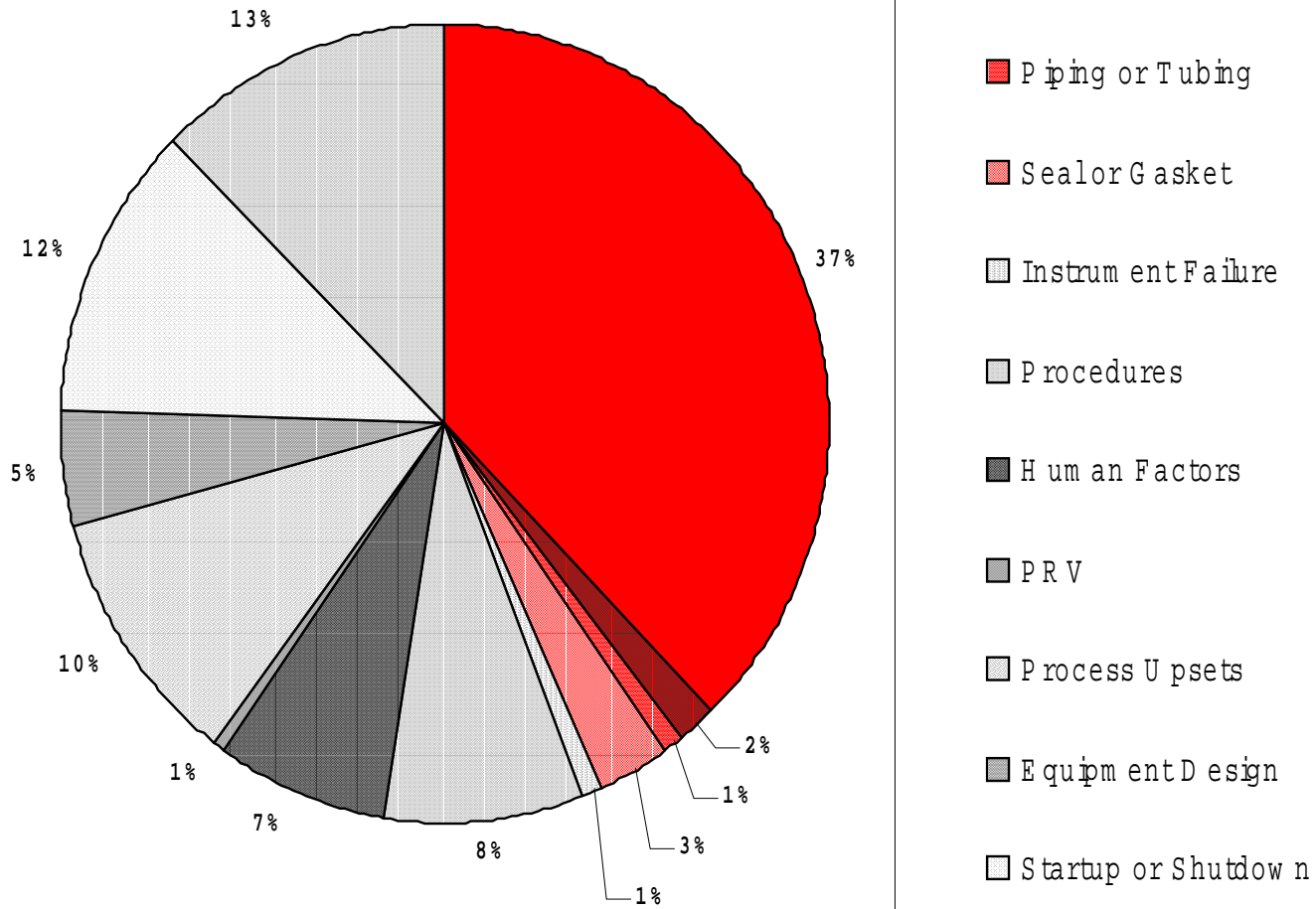
- Analyze and share trends and factors that contribute to releases.
- Share practices and programs currently in place to reduce releases.
- Analyze effectiveness of programs and practices and identify any gaps.
- Prepare and publish a findings report.

<i>Root Cause of Release (No. of releases)</i>	<i>Percentage</i>
Equipment Failure	27
Process Upsets	14
Human Factors	10
Startup/Shutdown	9
Equipment Design	8
Procedures	8
Corrosion	7
Instrument Failure	5
Other	5
Seal or Gasket	3
Piping or Tubing	2
Pressure Relief Valve	2

Pareto - Causes by Number



Pareto - Root Cause By Pounds



Equipment Failure

Corrosion

Piping or Tubing

Seal or Gasket

Instrument Failure

Procedures

Human Factors

PRV

Process Upsets

Equipment Design

Startup or Shutdown

Other

Process Results

- OVER 15 MONTHS
- Number of releases release reduced 28%
- Quantity of releases reduced 48%