
API Recommended Practice 585

Pressure Equipment Integrity Incident Investigation

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The purpose of this document is to provide owners/users with practices for developing, implementing, sustaining, and enhancing an investigation program for pressure equipment integrity (PEI) incidents. This recommended practice (RP) describes characteristics of how an effective investigation could be structured so organizations can learn from PEI incidents. This RP is not intended to define or supplement criteria for compliance with regulatory requirements for which companies already have defined investigation processes in place. Rather, API 585 provides a specific focus on investigating PEI failures that are precursors to potential incidents that could have significant impact on safety, health, and environment.

Significant mechanical integrity incidents are rarely the result of one isolated issue; there are almost always less severe precursors to a major failure. These precursors are frequently called near misses when they are found. Additionally, this document highlights the value in recognizing these precursor occurrences and promotes investigating them to determine the immediate, contributing, and root causes. If these precursor occurrences are uncovered, investigated, and the contributing and root causes are resolved, then major catastrophic failures of pressure equipment could be minimized or prevented.

The investigation principles and concepts that are presented in this RP are specifically targeted for application to process pressure equipment in the refining and petrochemical industry but could be applied to other equipment at the discretion of the owner/user.

The following examples are the types of equipment considered to be within the scope of this document.

- a) Pressure vessels—all pressure-containing components.
- b) Piping—pipe and piping components (valves, expansion joints, sight glasses).
- c) Storage tanks—atmospheric, low pressure, and pressurized.
- d) Rotating equipment—pump and compressor cases and associated pressure-containing piping and pressure vessels, excluding seals.
- e) Boilers and heaters—pressurized components.
- f) Heat exchangers—shells, heads, channels, and pressure-containing components and tube bundles.
- g) Pressure-relief devices.
- h) Structural systems—integral to supporting pressure-containing systems.
- i) Cooling water towers.
- j) Stacks and flares.

Other types of pressure equipment can be included at the discretion of the owner/user.

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Contents

Page

1	Scope	1
1.1	General	1
1.2	Industry Scope	1
1.3	Flexibility in Application	1
1.4	Pressure Equipment Integrity (PEI) Focused	1
1.5	Types of Pressure Equipment Covered	2
1.6	Types of Equipment Excluded	2
1.7	Target Audience	2
1.8	Organizational Responsibilities	3
2	Normative References	3
3	Terms, Definitions, Acronyms, and Abbreviations	3
3.1	Terms and Definitions	3
3.2	Acronyms and Abbreviations	5
4	PEI Incident Tracking	6
4.1	PEI Incident Types	6
4.2	Documenting PEI Incidents	7
5	PEI Incident Causes	8
5.1	Types of Causes	8
5.2	Determining Causes	9
6	PEI Incident Investigations	10
6.1	General	10
6.2	PEI Incident Investigation Levels	10
6.3	PEI Incident Investigation Guidelines	12
6.4	Initial Response to a PEI Incident	12
6.5	Types of Evidence	13
7	Conducting PEI Incident Investigations	14
7.1	General	14
7.2	Performing Level 1 PEI Incident Investigations	14
7.3	Performing Level 2 PEI Incident Investigations	16
7.4	Level 3 PEI Incident Investigations	24
7.5	Component Failure Analysis	25
8	Training and Qualifications	27
8.1	General	27
8.2	Incident Investigation Team Leaders	27
8.3	Incident Investigation Team Members	28
8.4	Site Management Personnel	28
9	Continuous Improvement for PEI Incident Investigations	28
9.1	Information Sharing	28
9.2	Monitoring of the PEI Incident Investigation Program	29

Contents

	Page
Annex A (informative) Example Reporting Form for PEI Incidents	30
Annex B (informative) Example Application of the “5-Whys” Investigation Methodology	31
Annex C (informative) Example: Level 1 PEI Incident Investigation Results Form	33
Annex D (informative) Example Lists of Generic Evidence to be Gathered	34
Annex E (informative) Examples of Questions to Ask Eyewitnesses	36
Annex F (informative) Request for Failure Analysis Form	37
Annex G (informative) Example Template for Level 2 or Level 3 PEI Incident Investigation Report	39
Bibliography	40
Table	
1 Example PEI Incident Investigation Guidelines	13