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## ERRATA

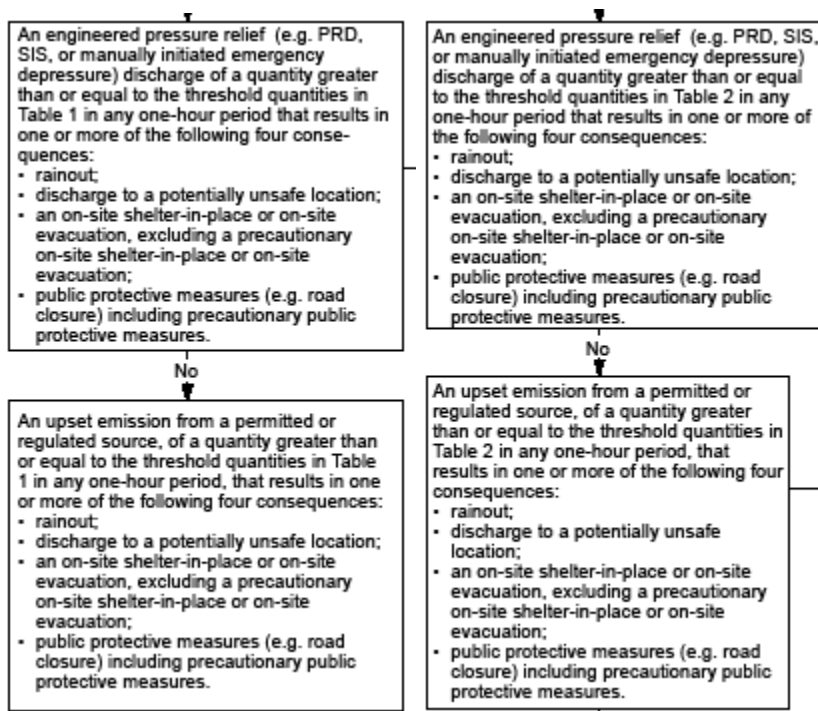
Page 49, Table E.3, Example 26, second paragraph, should read:

If the spill had been less than 2200 lb (7 bbl), but equal to or greater than 220 lb (1 bbl), it would be a Tier 2 PSE.

Page 72, Annex G.7.1, header should read:

### G.7.1 Liquid Streams with a Distinct Liquid Phase of Flammable Liquid

Page 74, Annex H, the following sections of the flowchart should read as follows:



# Process Safety Performance Indicators for the Refining and Petrochemical Industries

ANSI/API RECOMMENDED PRACTICE 754  
SECOND EDITION, APRIL 2016

ERRATA, JUNE 2017



AMERICAN PETROLEUM INSTITUTE



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## **Introduction**

The purpose of this recommended practice (RP) is to identify leading and lagging indicators in the refining and petrochemical industries for nationwide public reporting as well as indicators for use at individual facilities including methods for the development and use of performance indicators. A comprehensive leading and lagging indicators program provides useful information for driving improvement and when acted upon contributes to reducing risks of major hazards (e.g. by identifying the underlying causes and taking action to prevent recurrence). This RP may augment a Company's existing practices and procedures.

This RP cannot and does not preempt any federal, state, or local laws regulating process safety. Therefore, nothing contained in this document is intended to alter or determine a Company's compliance responsibilities set forth in the Occupational Safety and Health Act of 1970 and/or the OSHA standards themselves, or any other legal or regulatory requirement concerning process safety. The use of the term or concept "process safety" in this document is independent of and may in fact be broader than the term or concept "process safety" contained in OSHA regulatory requirements, or as the term may be used in other legal or regulatory contexts. In the event of conflict between this recommended practice and any OSHA or other legal requirements, the OSHA or other legal requirements should be fully implemented.

## Notes to the Second Edition

As part of the revision process, the drafting committee gathered input from companies that had adopted this RP. The committee sought comments regarding the utility and usefulness of the Tier 1 and Tier 2 indicators to drive performance improvement, as well as any comments regarding suggested improvements. The result of the input gathering exercise was a desire for continuous improvement rather than any need for fundamental change.

Although the RP was written for the U.S. Refining and Petrochemical industries, it has been widely adopted around the globe and by additional industry segments. The revision committee benefited from broad participation by parties with a direct and material interest from academia, trade associations, engineering and construction, regulators, and owner/operators both domestic and international.

The purpose of this RP is to identify leading and lagging process safety performance indicators in the refining and petrochemical industries for nationwide public reporting as well as indicators for use at individual facilities including methods for the development and use of performance indicators. A comprehensive leading and lagging indicators program provides useful information for driving improvement and when acted upon, contributes to reducing risks of major hazards (e.g. by identifying the underlying causes and taking action to prevent recurrence).

In revising this document, the drafting committee maintained a focus on indicators of process safety performance versus indicators of health, personal safety or environmental performance. Each is important and each should have its own performance indicators as part of a comprehensive and robust facility Health, Safety, and Environmental program. Process safety hazards can result in major accidents involving the release of potentially dangerous materials. Process safety incidents can have catastrophic effects such as multiple injuries and fatalities, as well as substantial economic, property, and environmental damage; and can affect workers inside the facility and members of the public who reside or work nearby.

Numerous issues including process safety indicator definitions, chemical release thresholds, data capture, statistical validity, and public reporting were again considered; this time with the benefit of four years of implementation experience. One of the most significant revision proposals was the adoption of the Globally Harmonized System for Classification and Labeling of Chemicals (GHS) for threshold release categorization. After numerous and lengthy debates, the drafting committee chose to reaffirm the U.S. DOT version of the *United Nations Dangerous Goods (UNDG)* hazard classification system as the most appropriate. This system is unique in the treatment of toxic chemicals in terms of both relative toxicity and relative volatility that produces a more accurate ranking of relative process safety hazards.

Other significant continuous improvement changes include:

- the addition of informative annexes specifically defining the applicability of this RP to Petroleum Pipelines and Terminals, Retail Service Stations, and Oil and Gas Drilling and Production Operations;
- the addition of an informative annex for Tier 1 PSE Severity Weighting;
- extensive additions to the informative annex of PSE Examples and Questions;
- the addition of informative annexes for Guidance for Implementation of Tier 3 and Tier 4 Indicators and Tier 4 Example Indicators;
- the revision of the Tier 1 threshold for Direct Cost Damage from Fires and Explosions from \$25,000 to \$100,000 to better align with the severity of the other Tier 1 consequence categories.

# Process Safety Performance Indicators for the Refining and Petrochemical Industries

## 1 Scope

### 1.1 General

This recommended practice (RP) identifies leading and lagging process safety indicators useful for driving performance improvement. As a framework for measuring activity, status or performance, this document classifies process safety indicators into four tiers of leading and lagging indicators. Tiers 1 and 2 are suitable for nationwide public reporting and Tiers 3 and 4 are intended for internal use at individual facilities. Guidance on methods for development and use of performance indicators is also provided.

### 1.2 Applicability

**NOTE** At joint venture sites and tolling operations, the Company should encourage the joint venture or tolling operation to consider applying this RP.

This RP was developed for the refining and petrochemical industries, but may also be applicable to other industries with operating systems and processes where loss of containment has the potential to cause harm (see note). Applicability is not limited to those facilities covered by the OSHA Process Safety Management Standard, 29 *CFR* 1910.119, or similar national and international regulations.

**NOTE** To enable consistent application of this RP to other refining and petrochemical industry sub segments, informative annexes have been created to define the Applicability and Process definition for those sub segments. The user would substitute the content of those annexes for the referenced sections of this RP: Annex A—Petroleum Pipeline and Terminal Operation, Annex B—Retail Service Stations, Annex C—Oil and Gas Drilling and Production Operations.

This recommended practice applies to the responsible party. At collocated facilities (e.g. industrial park), this recommended practice applies individually to the responsible parties and not to the facility as a whole.

Events associated with the following activities fall outside the scope of this RP and shall not be included in data collection or reporting efforts:

- a) releases from transportation pipeline operations outside the control of the responsible party;
- b) marine transport operations, except when the vessel is connected or in the process of connecting or disconnecting to the process;
- c) truck or rail transport operations, except when the truck or rail car is connected or in the process of connecting or disconnecting to the process, or when the truck or rail car is being used for on-site storage;

**NOTE** Active staging is not part of connecting or disconnecting to the process; active staging is not considered on-site storage; active staging is part of transportation.

- d) vacuum truck operations, except on-site truck loading or discharging operations, or use of the vacuum truck transfer pump;
- e) routine emissions from permitted or regulated sources;

**NOTE** Upset emissions are evaluated as possible Tier 1 or Tier 2 PSEs per Section 5.2 and Section 6.2.

- f) office, shop, and warehouse building events (e.g. office fires, spills, personnel injury or illness, etc.);