

**AFPM & API
ADVANCING
PROCESS SAFETY**

**ANSI API RP-754
Quarterly Webinar**

Jul 21, 2015

*Process Safety Performance
Indicators for the Refining and
Petrochemical Industries*



Purpose of RP 754 Quarterly Webinars

- To support broad adoption of RP-754 throughout the Refining and Petrochemical industries
- To ensure consistency in Tier 1 and 2 metrics reporting in order to establish credibility and validity
- To share learning's regarding the effective implementation of Tier 1-4 lagging/leading metrics

Today's Agenda

- Status of 2014 Tier 1 and Tier 2 PSE data reports
- Reiterating suggestions for effective incident descriptions
- Update on RP-754 revision activity including several proposed clarifications

2014 Tier 1 and Tier 2 PSE data submittals

- RP-754 metrics program is a joint API-AFPM program
- Most companies submitted their 2014 data to both trade associations
- Submittals are made using either:
 - The common standardized spreadsheet or
 - Via the association's on-line portal
- Any feedback?
 - Was it easy to submit your data?
 - You don't know, someone else in your company does that.
 - Suggestions?

Status of 2014 Final PSE Reports

- The Advancing Process Safety Metrics Committee met in mid-June to conduct a deep dive analysis of the 2014 data
- A handful of PSEs associated with PRD releases did not appear to meet the definition of a PSE. Specifically, they released the TQ amount from a PRD but did not also have one or more of the required four negative outcomes:
 - Liquid carryover
 - Discharge to a potentially unsafe location
 - On-site shelter-in-place
 - Public protective measures (e.g. road closure)
- AFPM circled back with companies to verify
- Final reports should be ready to issue by end of August
- Next year's deep dive analysis will occur in April to speed up the process of issuing the final reports

Needed: Better Incident Descriptions

- There is still room for improving the clarity and robustness of the “**Brief Incident Descriptions**” to allow for meaningful data analysis.
 - The following slides give examples of not-so-good and good descriptions...

Incident Descriptions that are not helpful:

- Examples of incident descriptions that are not helpful for data analysis (i.e., need to be expanded)

Loading Rack Spill

Pipeline Leak

Fire on E-1 Exchangers

Sump vent stack vapors

Tank 143 overfill

Piping failure on west Tk-52 pump.

Charge tank was overfilled

- Others leave you wondering if the incident was even a Tier 1 or 2 event.

Power grid shut down resulting in loss of vapor recovery systems

Flared hydrogen sulfide as a result of a unit shutdown

Better, but could be improved with a little more detail

Hydrogen Sulfide was released due to a tubing fitting leak on the Hydrogen Recycle Compressor's discharge flow transmitter.

Why did the fitting leak?

LOPC on tank mixer packing due to loss of lubrication caused by continued use below the minimum level for mixer operation.

Why operated too low?

1" bleeder broken on exchanger head causing an LPG release and fire.

How was it broken?

Some were really good

A flash fire occurred in the FCC reactor when contractor employees were pulling the spectacle blind to change new gaskets on the blind. The Main Column was lined to the flare and flare gas flowed through backwards up the vapor line into the reactor catching fire. The flash fire resulted in one contractor employee receiving minor burns.

Leak on a fractionator Reflux line located in the pipe rack due to corrosion. Corrosion was caused from a leak in a process water line dripping on the reflux line. The Reflux pump was shut down and the line was isolated.

Crane struck crude unit piping at the desalter while removing sump pump. There was a crude release which found an ignition source resulting in a minor fire.

LOPC from overfilling small caustic tank due to malfunctioning level indication and backflow.

Leak on distillate line caused by corrosion/erosion.

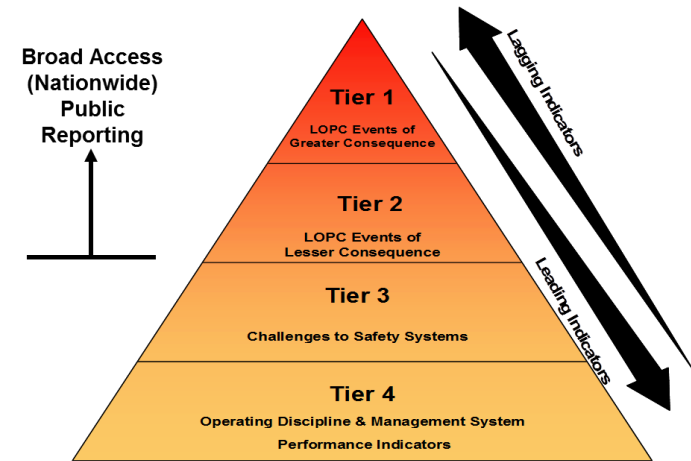
- These offered both consequence(s) and a cause

Conclusion

- More detailed incident descriptions will help the annual industry data analysis.
- Please share this presentation with those in your company who submit data.
- Special note: International sites had especially short descriptions in 2014.
- Recommendation: Have one person in the company review all PSEs prior to submittal and expand on the descriptions where possible.

RP-754 Revision Committee - Status

- Guiding Principles:
 - Revision committee members unanimously agree that RP-754 is not broken; it is doing what an indicator is intended to do.
 - Evidence indicates it is working within our Companies to focus attention on process safety and to drive performance improvement.
 - The revision process is focused on improvement rather than any fundamental change.
- Revision ballot comments due August 14
- Anticipate publishing revision in 2015 CY
- Trade associations will collect 2015 data based on original version criteria, allowing time for companies to implement any needed changes



RP-754 2nd Edition Summary of Proposed Changes

- There were three “Big Issues” examined during this year-long revision process:
 - \$25k or \$100k Tier 1 direct cost limit for fire or explosion damage
Result: Super majority “approved” increase to \$100k
 - Mandatory or optional use of Tier 1 severity weighting
Result: Mandatory use did not reach super majority (“rejected”)
 - Tier 1 and Tier 2 threshold release categories and quantities (GHS v. non-GHS)
Result: Super majority “approved” non-GHS option

RP-754 2nd Edition Summary of Proposed Changes

- Applicability - Addition of informative annexes for the application of RP-754 to Petroleum Pipelines & Terminals, Retail Service Stations, and Oil & Gas Drilling and Production Operations
- Definitions -
 - a. Active Staging: Clarification concerning when truck or rail car exit their transportation mode
 - b. Active Warehouse: On-site warehouses that store raw materials, intermediates, or finished products used or produced by a refinery or petrochemical facility are part of the process
 - c. Alternate Primary Containment: The Tier 1 and Tier 2 threshold quantity consequence is excluded for releases to alternate primary containment.
- Tier 1 -
 - a. Added a threshold release quantity for UNDG Class 2, Division 2.2 (non-flammable, non-toxic gases) excluding air
 - b. Changed the indoor threshold release quantity from 50% to 10% of the outdoor release quantity
 - c. Changed the fire and explosion direct cost threshold from \$25,000 to \$100,000

RP-754 2nd Edition Summary of Proposed Changes

- Tier 2 -
 - a. Added a threshold release quantity for UNDG Class 2, Division 2.2 (non-flammable, non-toxic gases) excluding air
 - b. Aligned the Tier 1 and Tier 2 threshold release categories
 - c. Added an upper bound on high flash materials released below their flashpoint [93 °C (200 °F)]
- PSE Data Capture -
 - a. Added a list of petrochemical process units
 - b. Added subcategories for the normal mode of operation
 - c. Added a list of causal factors
- Tier 1 PSE Severity Weighting - Added an informative annex for calculating the severity weighting of Tier 1 Process Safety Events
- PSE Examples - Added a significant number of new examples of the informative annex

RP-754 2nd Edition Summary of Proposed Changes

- Multicomponent Releases - Added an informative annex to provide guidance on the determination of threshold release quantities for multicomponent releases
- Addition of an informative annex to provide guidance for the implementation of Tier 3 and Tier 4 indicators
- Addition of an informative annex for Tier 4 example indicators

2015 RP-754 webinars

Mark your calendars:

- Next call – Nov 10, 2015 (10-11am ct)

2014 Tier 1 and Tier 2 PSE data submittals

Contacts:

API:

- Email spreadsheet directly to Hazem Arafa at arafah@api.org or,
- Load data into API PSE portal located at <https://pseportal.api.org/>

AFPM:

- Email spreadsheet directly to Anna Scherer at safetyportal@afpm.org or,
- Load data into AFPM Process Safety Metrics portal located at [AFPM Safety Portal](#)

Resources

- API
 - API RP 754 Fact Sheet
 - Series of four webinars presented in fall 2010 (available for viewing)
 - Listing of FAQ's that help you properly classify a PSE
 - API Guide to collecting PSE data
 - Read-only access to API RP 754
 - Contact Ron Chittim at chittim@api.org for more information
 - Website: <http://www.api.org/environment-health-and-safety/health-safety/process-safety-industry/measuring-safety-improvement.aspx>
- AFPM Safety Portal
 - Process Safety metrics searchable database
 - 2011-2013 annual Process Safety Event reports
 - AFPM Guide to reporting PSE data
 - A “Hypothetical Process Safety Metrics Story”
 - Website: <http://safetyportal.afpm.org/ProcessSafetymetrics-access.aspx>