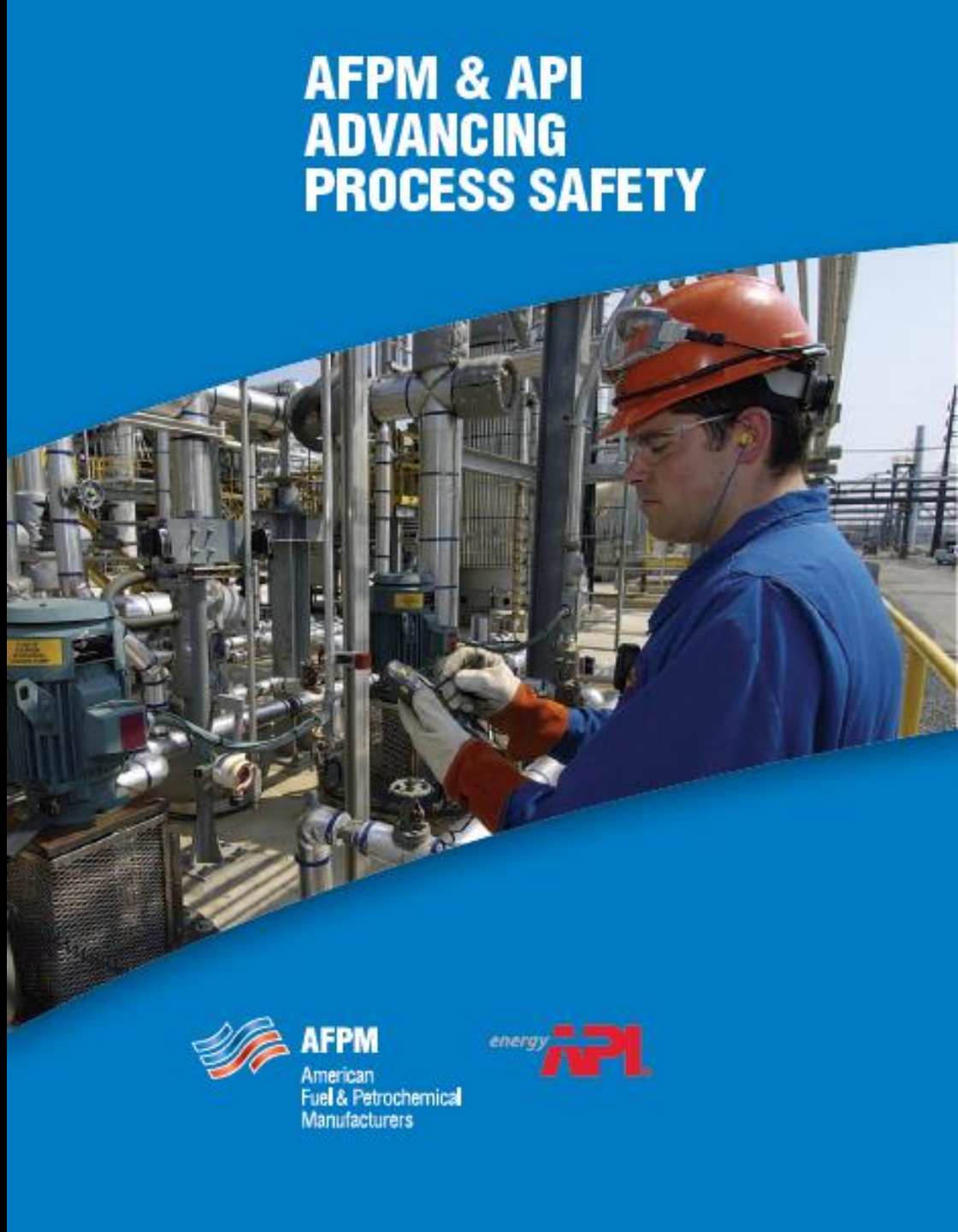
ANSI API RP-754

Quarterly Webinar

December 13, 2016

Process Safety Performance Indicators for the Refining and Petrochemical Industries



Purpose of RP 754 Quarterly Webinars

- To support broad adoption of RP-754 (2nd Edition) throughout the Refining and Petrochemical industries and other industry sectors where a loss of containment has the potential to cause harm
- To ensure consistency in Tier 1 and 2 indicators reporting in order to establish credibility and validity
- To share learning's regarding the effective implementation of Tier 1-4 lagging/leading indicators

Today's Agenda

Spreadsheet to collect PSE reporting information for 2016

- **Single spreadsheet used by AFPM and API**
- **Aligned with API RP 754 2nd Edition**

Deadline for submitting 2016 data is March 10, 2017

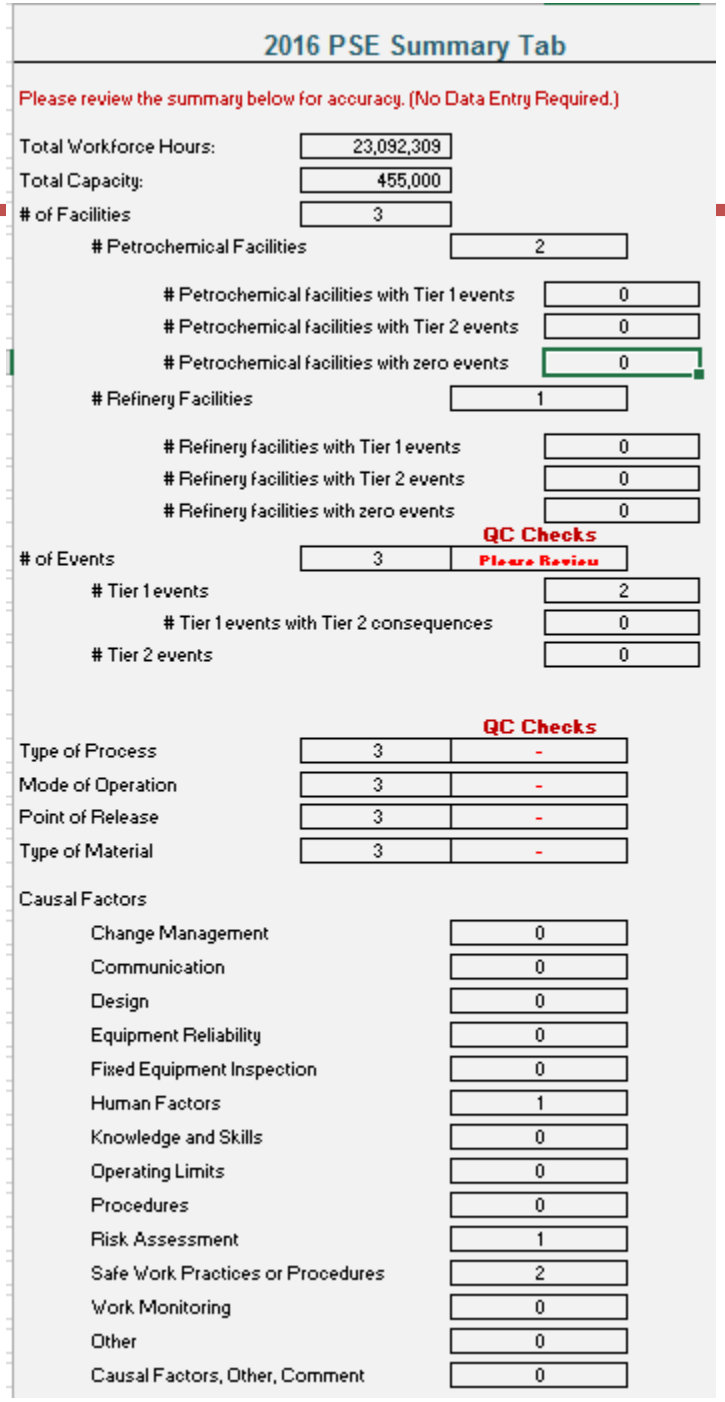
Contact Information

To allow for single submittal for both industry associations, a “share” button has been included:

- If “yes” is selected, this will allow sharing ONLY between API & AFPM
- If neither button is selected, the default is no sharing

Summary Tab

The summary tab provides a compilation of the data submitted in the “Facility Information” and “Event and Consequence” tabs. It should be used to conduct a quality check of submitted data.



2016 PSE Summary Tab

Please review the summary below for accuracy. (No Data Entry Required.)

Total Workforce Hours:	23,092,309	
Total Capacity:	455,000	
# of Facilities	3	
# Petrochemical Facilities		2
# Petrochemical facilities with Tier 1 events		0
# Petrochemical facilities with Tier 2 events		0
# Petrochemical facilities with zero events		0
# Refinery Facilities		1
# Refinery facilities with Tier 1 events		0
# Refinery facilities with Tier 2 events		0
# Refinery facilities with zero events		0
	QC Checks	
# of Events	3	Please Review
# Tier 1 events		2
# Tier 1 events with Tier 2 consequences		0
# Tier 2 events		0
	QC Checks	
Type of Process	3	-
Mode of Operation	3	-
Point of Release	3	-
Type of Material	3	-
Causal Factors		
Change Management		0
Communication		0
Design		0
Equipment Reliability		0
Fixed Equipment Inspection		0
Human Factors		1
Knowledge and Skills		0
Operating Limits		0
Procedures		0
Risk Assessment		1
Safe Work Practices or Procedures		2
Work Monitoring		0
Other		0
Causal Factors, Other, Comment		0

Facility Information Tab

Note that employee and contractor hours from the facility lines entered on this tab are summed to represent the employee and contractor work hours for the company. **Therefore sites with zero Tier 1 and Tier 2 PSEs should still be entered on this tab to ensure that event rates for the company are properly calculated**.

FACILITY INFORMATION								
Company Name	Site Name	Site Address	Facility Type (Refining/Petrochemical)	Total Employee Hours	Total Contractor Hours	Refining Capacity (BPD)	Open/Closed?	If no events, select option here
EXAMPLE			*EXAMPLE*					*EXAMPLE*
NewEnergy Refining	*XYZ Refinery*	*123 Refining Way*	*Refining*	*1,960,970*	*1,727,780*	*280,000*	*Active*	*No Tier 2 Events*

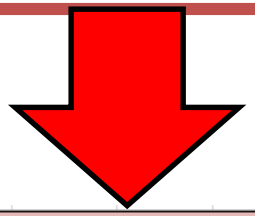
"Open / Closed?" column: This column is used to indicate sites that have been shut down or sold over the course of a year. Active indicates the site to be in ongoing operation within the company at the end of the year. Inactive indicates that the site has ceased operating for the company during the course of the year (Sold or shut down).

Event and Consequence Tab

EVENT DATA														
Site Name (MUST MATCH EXACTLY FROM FACILITY INFORMATION TAB)	Event Date (10.4.4.b)	Event Time (24 hr) (10.4.4.b)	Description of Incident (10.4.4.f)	Additional Comments (Optional) (10.4.4.g)	Type of Process (10.4.4.a)	Type of Process, Other, Comment (10.4.4.a.1.xxiv or 10.4.4.a.2.liii)	Mode of Operation (10.4.4.c)	Mode of Operation, Other, Comment (10.4.4.c.ix)	Normal Mode Sub-Category (10.4.4.c.iv)	Normal Mode, Other, Comment (10.4.4.c.iv.k)	Point of Release (10.4.4.d)	Point of Release, Other, Comment (10.4.4.d.xvi)	Type of Material (10.4.4.e)	Type of Material, Other, Comment (10.4.4.e.vii)
			EXAMPLE			EXAMPLE				EXAMPLE				
XYZ Refinery	10/01/16	18:45	Fire on exchanger in hydrogen plant that led to an emergency trip.	Unplanned LOPC causing fire with >$2500 but less than (events with more than one consequence)	Hydrogen	Text	Normal	Text	Sampling	Text	Heat exchanger	Text	Flammable	Text

Causal Factors (select all that apply)													
Change Management (10.4.4.h.i)	Communication (10.4.4.h.ii)	Design (10.4.4.h.iii)	Equipment Reliability (10.4.4.h.iv)	Fixed Equipment Inspection (10.4.4.h.v)	Human Factors (10.4.4.h.vi)	Knowledge and Skills (10.4.4.h.vii)	Operating Limits (10.4.4.h.viii)	Procedures (10.4.4.h.ix)	Risk Assessment (10.4.4.h.x)	Safe Work Practices or Procedures (10.4.4.h.xi)	Work Monitoring (10.4.4.h.xii)	Other (10.4.4.h.xiii)	Causal Factors, Other, Comment (10.4.4.h.xiii)
EXAMPLE				EXAMPLE				EXAMPLE					EXAMPLE
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Text

Event and Consequence Tab



TIER 1 INJURIES						TIER 1 EVAC	TIER 1 FIRE/ EXPLOSION		TIER 1 Engineered Pressure Relief					Tier 1 Upset Emission from a Permitted or Regulated Source			
Employee Days Away From Work Injuries (10.4.2.b.1.i)	Employee Fatalities (10.4.2.b.1.ii)	Contractor/ Sub Days Away From Work injuries (10.4.2.b.1.iii)	Contractor/ Subcontractor Fatalities (10.4.2.b.1.iv)	Third-Party Hospital Admissions (10.4.2.b.2.i)	Third-Party Fatalities (10.4.2.b.2.ii)	Officially Declared Community Evacuation or Shelter-In-Place (10.4.2.b.3)	Fire (10.4.2.b.4.i, ≥ $100,000 Direct Cost Damage)	Explosion (10.4.2.b.4.ii, ≥ $100,000 Direct Cost Damage)	PRD Directly to Atmosphere or Downstream Destructive Device (10.4.2.b.5)	Rainout (10.4.2.b.5.i.i)	Discharge to a Potentially Unsafe Location (10.4.2.b.5.i.ii)	On-Site Shelter-In-Place or on-site evacuation (10.4.2.b.5.i.iii)	Public Protective Measures (10.4.2.b.5.i.iv)	Rainout (10.4.2.b.6.i)	Discharge to a Potentially Unsafe Location (10.4.2.b.6.ii)	On-site Shelter-in-place or On-site Evacuation (10.4.2.b.6.iii)	Public Protective Measures (10.4.2.b.6.iv)
EXAMPLE									*EXAMPLE*								
2	*0*	*0*	*0*	*0*	*0*	*No*	*Yes*	*No*	*Directly to Atmosphere*	*No*	*No*	*No*	*No*	*Yes*	*Yes*	*Yes*	*No*

TIER 1 RELEASES													
Release, Category 1 (10.4.2.b.7.i)	Release, Category 1 (10.4.2.b.7.i) Release Location	Release, Category 2 (10.4.2.b.7.ii)	Release, Category 2 (10.4.2.b.7.ii) Release Location	Release, Category 3 (10.4.2.b.7.iii)	Release, Category 3 (10.4.2.b.7.iii) Release Location	Release, Category 4 (10.4.2.b.7.iv)	Release, Category 4 (10.4.2.b.7.iv) Release Location	Release, Category 5 (10.4.2.b.7.v)	Release, Category 5 (10.4.2.b.7.v) Release Location	Release, Category 6 (10.4.2.b.7.vi)	Release, Category 6 (10.4.2.b.7.vi) Release Location	Release, Category 7 (10.4.2.b.7.vii)	Release, Category 7 (10.4.2.b.7.vii) Release Location
	EXAMPLE					*EXAMPLE*						*EXAMPLE*	
Yes	*Outdoor*	*Yes*	*Outdoor*	*Yes*	*Outdoor*	*Yes*	*Outdoor*	*Yes*	*Outdoor*	*Yes*	*Outdoor*	*Yes*	*Outdoor*

Event and Consequence Tab

TIER 2 INJURIES		TIER 2 FIRE/ EXPLOSION		TIER 2 Engineered Pressure Relief					Tier 2 Upset Emission from a Permitted or Regulated Source			
Employee Recordable Injuries (10.4.3.b.1.i)	Contractor/ Subcontractor Recordable Injuries (10.4.3.b.1.ii)	Fire (10.4.3.b.2.i, $2,500 to $99,999 Direct Cost Damage)	Explosion (10.4.3.b.2.ii, $2,500 to $99,999 Direct Cost Damage)	PRD Directly to Atmosphere or Downstream Destructive Device (10.4.3.b.3)	Rainout (10.4.3.b.3.i.i)	Discharge to a Potentially Unsafe Location (10.4.3.b.3.i.ii)	On-Site Shelter-In-Place or on-site evacuation (10.4.3.b.3.i.iii)	Public Protective Measures (10.4.3.b.3.i.iv)	Rainout (10.4.3.b.4.i)	Discharge to a Potentially Unsafe Location (10.4.3.b.4.ii)	On-site Shelter-in-place or On-site Evacuation (10.4.3.b.4.iii)	Public Protective Measures (10.4.3.b.4.iv)
EXAMPLE							*EXAMPLE*					
10	*5*	*No*	*No*	*via Downstream Destructive Device*	*No*	*No*	*No*	*No*	*Yes*	*Yes*	*No*	*No*

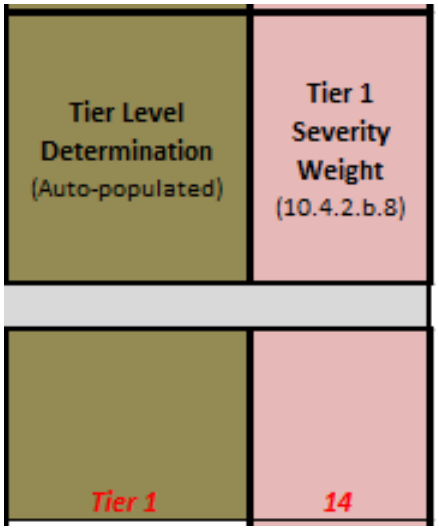
TIER 2 RELEASES															
Release, Category 1 (10.4.3.b.5.i)	Release, Category 1 (10.4.3.b.5.i) Release Location	Release, Category 2 (10.4.3.b.5.ii)	Release, Category 2 (10.4.3.b.5.ii) Release Location	Release, Category 3 (10.4.3.b.5.iii)	Release, Category 3 (10.4.3.b.5.iii) Release Location	Release, Category 4 (10.4.3.b.5.iv)	Release, Category 4 (10.4.3.b.5.iv) Release Location	Release, Category 5 (10.4.3.b.5.v)	Release, Category 5 (10.4.3.b.5.v) Release Location	Release, Category 6 (10.4.3.b.5.vi)	Release, Category 6 (10.4.3.b.5.vi) Release Location	Release, Category 7 (10.4.3.b.5.vii)	Release, Category 7 (10.4.3.b.5.vii) Release Location	Release, Category 8 (10.4.3.b.5.viii)	Release, Category 8 (10.4.3.b.5.viii) Release Location
EXAMPLE					*EXAMPLE*						*EXAMPLE*				
Yes	*Outdoor*	*Yes*	*Outdoor*	*Yes*	*Outdoor*	*Yes*	*Outdoor*	*Yes*	*Outdoor*	*Yes*	*Outdoor*	*Yes*	*Outdoor*	*Yes*	*Outdoor*

Event and Consequence Tab

Tier Level Determination auto-populates based upon selections in consequence area of tab. Please check it to verify accuracy for each event.

Tier 1 Severity Weighting must be entered in manually by the user. It is as a valuable data point for annual deep dive analysis.

See Annex D – RP 754 second edition for instructions on calculating severity weight



Questions