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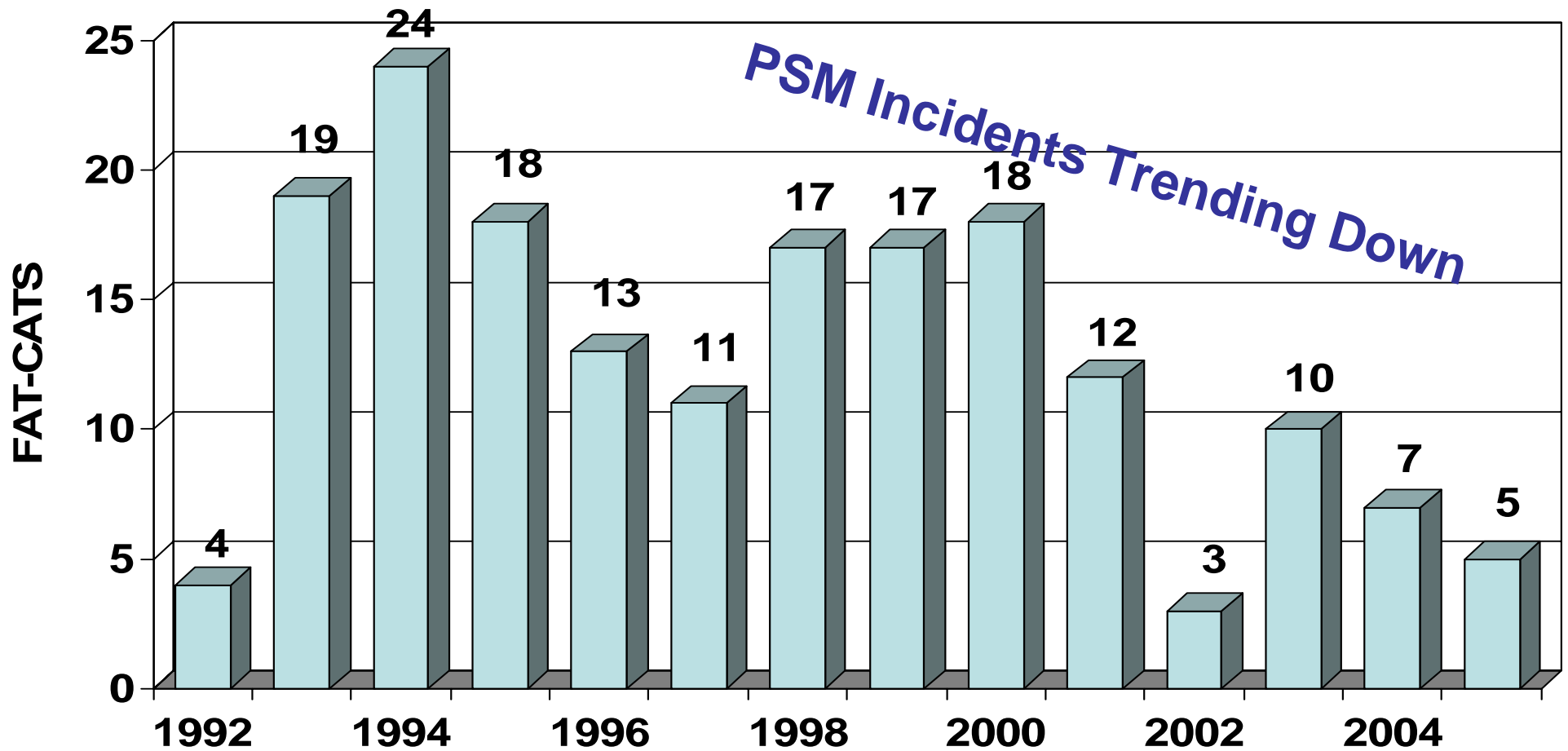
OSHA

adds value to business,
work and life.

OSHA's Refinery NEP Perspective
One Year Later
and
Upcoming Chemical Safety
Enforcement Initiative

September 22, 2008

Fatality/Catastrophe PSM Incidents



From DEP Fatality Study

EPA and Wharton Study

- Confirms PSM and RMP are moving to accomplish goals.
- “...during a decade-long period characterized by increasing economic activity and increasing hazard level at RMP-covered facilities, there has been a decline in the frequency of accidents reported by the approximately 10,000 facilities that have been continuously covered by the rule since its inception”. From EPA website intro to Study Report¹
- “...the major reason for the decline was a decrease in on-site consequence accidents”. From Study Report¹

1. Accident Epidemiology and the RMP Rule: Learning from a Decade of Accident History Data for the U.S. Chemical Industry, December 18, 2007; Risk Management and Decision Processes Center, The Wharton School of the University of Pennsylvania and Office of Emergency Management, U.S. Environmental Protection Agency

Refinery National Emphasis Program

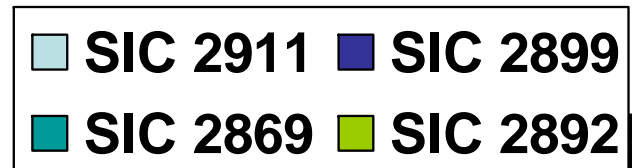
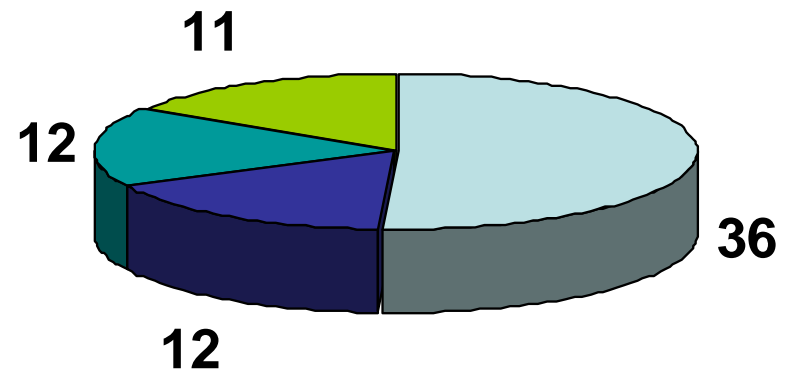
- OSHA national PSM enforcement program
 - Program (NEP) for inspecting petroleum refineries
 - **SIC 2911 (NAICS 324110)**
- Contains policies and procedures to **verify employers' compliance** with OSHA's PSM standard
- **Primary Purpose: Tool for OSHA CSHOs** to determine compliance w/PSM

Why Refinery NEP

- Need for OSHA to conduct programmed inspections at high risk facilities
- FAT/CAT data indicates refineries are good place to start
 - SIC 2911 experienced 36 FAT/CATS since 1992
 - Top 4 SICs account for 40% of all PSM FAT/CATS
 - Refineries account for 20% of Total
 - Refinery FAT/CATs > other 3 top SICs combined
- Recent Refinery Incidents
 - BP TCR

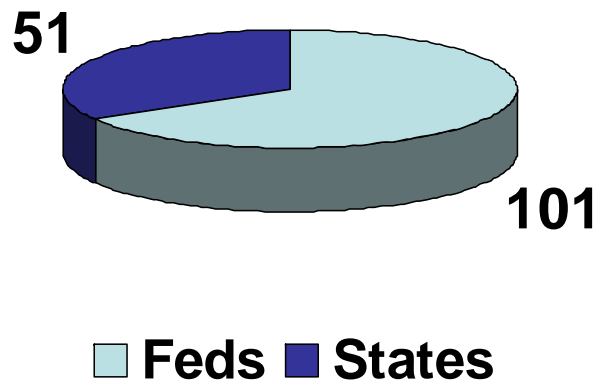
Refinery FAT/CATS by Most Frequent SIC

178 Total PSM FAT/CAT
Incidents

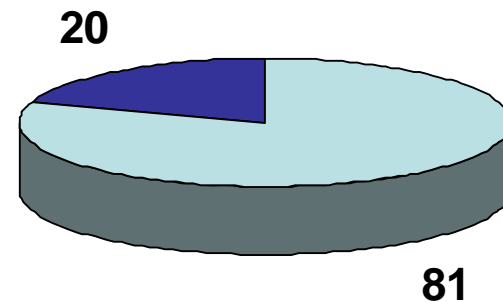


Breakdown of 152 U.S. Refineries

Federal vs. State-Plan Refineries

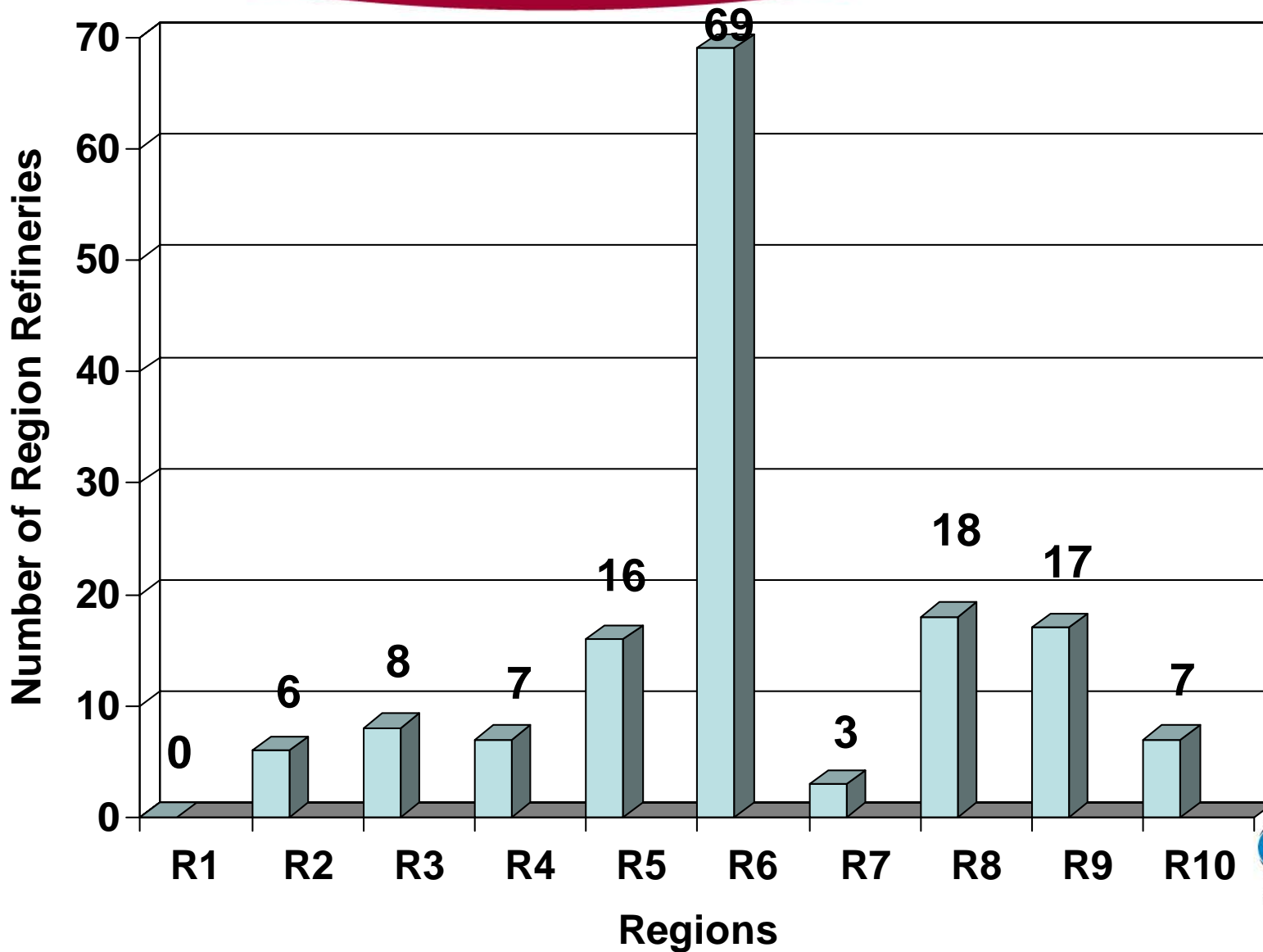


101 "Federal NEP" Refineries



From EPA RMP Submittals

Distribution of U.S. Refineries by Region



NEP Focus Areas

- Priority on **Implementation** versus the existence of documentation
 - Ensure that employers do what they have committed to do
- RAGAGEP
 - 119(d)(3)(ii) – “...shall comply with RAGAGEP”
 - Mostly Equipment
 - Vessels, Piping, Relief Systems, Blowdown Systems
- PHA
 - 119(e)(1) - “...shall identify, evaluate, and control hazards of process”
- Equipment Deficiencies
 - 119(j)(5) – fix deficient equipment before further use or take necessary means to assure safe operation until deficiency can be fixed at next opportunity
- Others

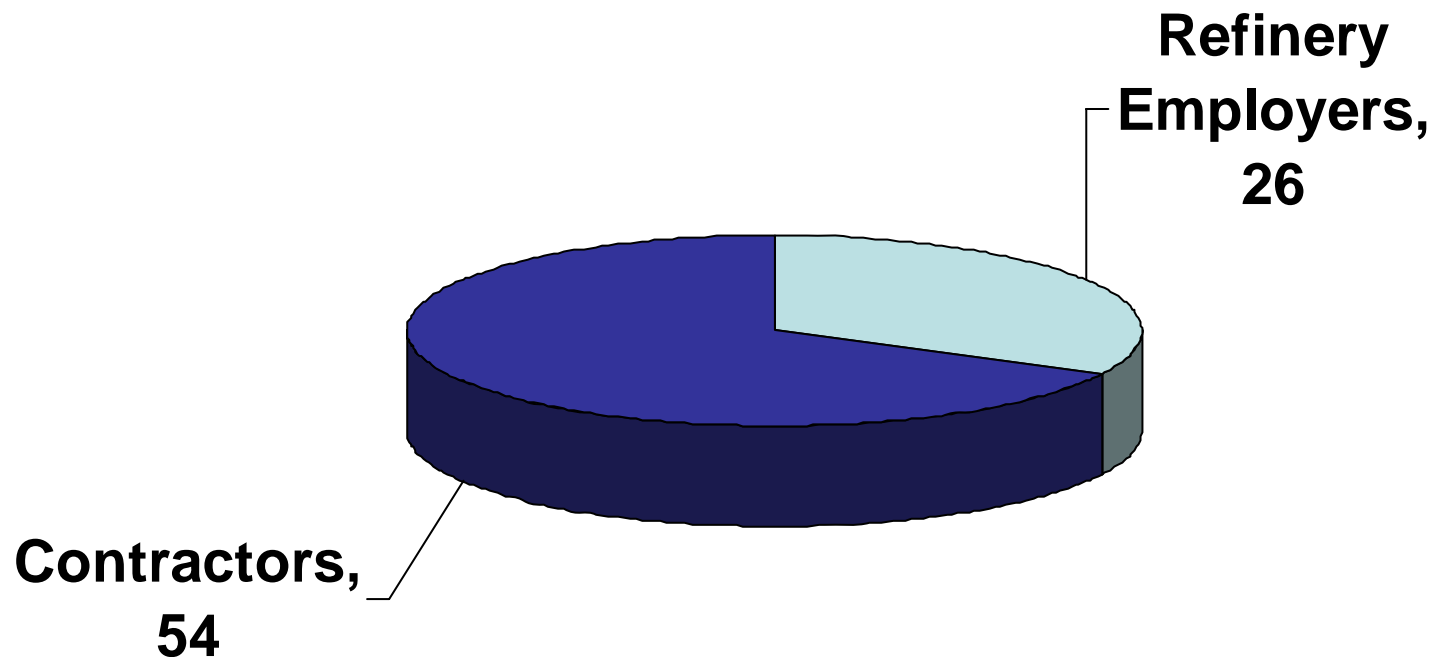
New Inspection Strategy

- Evaluate PSM compliance using Inspection Priority Items (IPI)
 - Gap Analysis (Yes, No, N/A Questions)
 - Questions developed in-house
 - will work in questions provided by anybody
- List Based IPI
 - Static List
 - 95 Questions
 - Like all OSHA CPLs, posted on public website
 - Dynamic List
 - 8 to 15 questions/list
 - Changes periodically
 - “Secret List” for inspection integrity
 - Not posted on OSHA’s public website

NEP Inspections

80 Refinery NEP Inspections¹

(June 7, 2007 through September 1, 2008)



1. Inspections which have been started and are at some phase of completion

NEP Inspections to Date

Region	Refineries	Contractors	Total
I	0	0	0
II	2	2	4
III	2	0	2
IV	5	2	7
V	5	16	21
VI	9	27	36
VII	2	4	6
VIII	1	3	4
IX	0	0	0
X	0	0	0
Total	26	54	80

NEP Inspection Summary¹

- 20 NEP inspections “issued”
- 456 total citations issued to refinery employers
- 344 total PSM citations issued
 - Many more instances/deficiencies
- 9 Significant Enforcement Cases
- Average citations per NEP inspection > 23
 - Max: 46 different standards cited in 2 inspections
 - Min: 6 different standards cited

1. Federal jurisdiction data only

Standards Cited

	<u>Violations</u>
• 1910.119 PSM.....	361
• 1910.147 Lock and Tag.....	23
• 1910.120 Hazwoper.....	19
• 1910.1200 Hazcom.....	7
• 1910.146 Confined Space.....	5
• 1910.307 Hazardous Locations.....	6

NEP Violation Classifications

Classification	Refinery Violations	Contractor Violations
Willful	6	0
Unclassified	5	0
Repeat	8	0
Serious	394	9
Other	15	10

NEP Penalties

Penalties	Refineries
Willful	\$390,000
Unclassified	\$329,000
Repeat	\$227,000
Serious	\$1,468,000
Other	\$11,000
Total	\$2,424,000

Most Frequent NEP PSM Citations

1910.119(x)(x)

- (f)(1) Operating procedures.....49
- (d)(3) PSI pertaining to equipment47
- (e)(3) PHA specific criteria.....40
- (j)(4) MI Inspection & Testing32
- (e)(5) PHA recommendation F/U16
- (j)(5) Deficient Equipment.....16
- (l)(1) MOC implementation15

NEP Comments

- Inspection Team Size
 - typically 3 to 4 team members
- Inspection Duration
 - On-site: 6 weeks to 4 months
 - Total time (on and off-site): 3 to 6 months
 - Time dependent on many factors
 - Size of refinery
 - Number of deficiencies
 - Violation Classification
- Low Hanging Fruit not addressed by employer

Citation Findings

- **PHA did not address:**
 - Facility siting
 - Occupied structures
 - Pipe racks above control rooms
 - HVAC equipment on control room roof
 - Vessels near roadway
 - **Human Factors**
 - Location of isolation valves
 - Heat exchangers identified inconsistently (name vs. number)
 - Overfilling tanks and vessels
 - misdirecting flare gases and liquid/vapor mixtures
 - **Loss of utilities** and how they would affect the safety of the unit
 - **Loss of control room functions.**

Citation Findings

- **Equipment deficiencies not corrected**
 - Charge drum with heavy corrosion between shell and support saddles
 - Toxic and flammable detectors in control room ducting not in working order
 - Building pressurization system not working
 - Unit HF detectors not in working order
 - Failure to follow RAGAGAP for relief valves – set at 270 psi with a MAWP of 150 psi and 540 psi for MAWP of 480 psi.
 - Pump with failed primary seal in service

Citation Findings

- **Did not develop Mechanical Integrity program procedure for:**
 - Inspecting pressure vessels with integrally bonded liners
 - CUI inspections of pressure vessel and piping
 - Inspecting injection points on refinery piping
 - Addressing anomalous inspection data pertaining to metal thicknesses for pressure vessels and piping
 - Addressing application of engineered clamps to pressure vessels and piping to ensure consistent administration throughout the refinery
 - Historic data was not entered into the Risk Based Mechanical Inspection program nor the MI inspection data software until 2007
 - Inspecting pressure vessels with non-metallic linings

Citation Findings

- **The PHA was not updated or revalidated**
 - The employer failed to consider in its unit PHA revalidations the increased production throughput in the Hydrotreater Unit and its effect on the facility's relief system capacity. The HDT Unit began exceeding the throughput design basis of 25,000 bpd in March 2001 and continued through May 2007
- The **incident investigation report** did not include the factors that contributed to the incident

Citation Findings

- **The employer did not develop and implement written operating procedures:**
 - No SOP for control of hazards after a seal failure
 - Practice of water hose use for cooling equipment did not reflect the SOP
 - ESP does not state whether it is used for power failure or air or steam failure
 - ESP does not assign shutdown authority to a specific operator or position
 - Emergency procedures did not specify entry/trigger point
 - Normal procedures did not identify trigger for emergency procedures

“Chemical Plant” Compliance Directive

- Need for programmed inspections at high risk chemical facilities
- PSM inspection resources fully deployed conducting NEP
- Pilot Program for Chemical Facilities
 - Regions with few NEP inspections
 - 1 year in duration
 - Decision near end of NEP to fully deploy Chem CPL

Pilot Chem CPL

- Details TBD
- Thoughts
 - Targeting Sites to be Inspected
 - Use RMP Program 3 facilities as main target for selecting sites for inspection
 - ≈ 8,000 RMP 3 covered processes
 - Add SICs typically covered by PSM which are not covered by RMP
 - Inspection Strategy
 - Many inspections, shorter duration
 - Use Dynamic List IPI concept



Questions

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