

Chemical Facility Safety

UCLA/NIEHS Workshop

Los Angeles, CA

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Obama Exec Order: Will It Prevent Future Chemical Plant Disasters?

- Looking at the Presidents Executive Order from a labor perspective
- Issues with Process Safety Management – (PSM) – that need attention
- What changes to the PSM standard can accomplish for workers and communities

Hydrofluoric Acid (HF)

- USW report on the dangers of HF
 - To the worker
 - To the community
- Approximately 1/3 of U.S. refineries (50) use very large quantities of HF in alkylation
- Some have >1/2 million pounds on site
- HF readily vaporizes in the atmosphere. A large release can form a vapor cloud that can travel great distances

Metropolitan Areas at Great Risk from Refineries Using Hydrofluoric Acid

City/Area	Number of Refineries	Number of Workers	Persons at Risk Community	Location	Company
Chicago	2	Hundreds	1 to 2 million	Joliet Lemont	ExxonMobil CITGO
Minneapolis	1	Hundreds	2 million	St Paul Park	Marathon
New Orleans	4	Over 1,000	300,000 to 1 million	Belle Chasse Chalmette Garyville Meraux	P-66 ExxonMobil Marathon Murphy
Salt Lake City	3	Hundreds	200,000 to 1 million	Salt Lake City N. Salt Lake Woods Cross	Chevron Flying J Holly
Canton, OH	1	Hundreds	900,000	Canton	Marathon
Memphis	1	Hundreds	800,000	Memphis	Valero

Why Are Communities at Risk?



HF release in South Korea

Five workers killed, 18 injured, 3,000 treated for exposure

Numerous cattle and crops were affected

May take up to five years for area to recover from acid leak

Area was declared a disaster zone

Conclusions

- HF disaster potential at refining operations is so great that it may be impossible for refineries to be fully prepared to respond once a major incident is underway
- Overall, HF-using refineries are not fully prepared to prevent or to respond to HF incidents especially those traveling off-site or involving worst case scenarios
- Substituting safer processes using safer chemicals is the only real solution; much, much safer alternative chemicals and processes are available.

A Risk Too Great: Hydrofluoric Acid in U.S. Refineries

The report can be found online at

<http://assets.usw.org/resources/hse/pdf/A-Risk-Too-Great.pdf>

Changes to PSM Standard

- Atmospheric Storage Tank Exemption
- Eliminate exemption
 - Several incidents involving storage tanks
 - Puerto Rico
 - Delaware City
 - Buncefield, UK

Oil and Gas Well Drilling/Servicing

- Long been exempted in anticipation of developing separate rule
 - No rule ever developed
 - Time is now to cover these workers
 - These are hazardous worksites
 - Many fires and other incidents reported

Require Additional Management System Elements

- Management of Organizational Change
- Human Factors
 - Including Fatigue, Ergonomics
- Leading/Lagging Indicators
- Use CCPS 20 Elements as background

Recognized and Generally Accepted Good Engineering Practices RAGAGEP

- Could use a Recognized and Generally Accepted Good Definition
- 'Grandfathering' often claimed for not making change
 - There is no grandfathering clause in PSM standard

Mechanical Integrity of Any Safety Critical Equipment

- Currently covers specific equipment
- Needs to be expanded to all safety critical equipment, some of which is currently viewed as utility service - steam, water, air, nitrogen
- Fire fighting water and fire suppression equipment
- Electric sources, lines, backup generators, motor control centers, distributed control systems

PSM Standard Requires Work

- Intent of RAGAGEP was to allow for updates based on technology without rule changes
- Accomplish reduction in hazards by: As Low As Reasonably Practicable, ALARP
- Add elements of Safety Case to updated and strengthened PSM

Our Goal

- To see that the assurance of a safe workplace becomes a reality
- Standard changes are just the beginning
 - The ultimate challenge is to find a way to persuade employers to follow the rules

Thank You

Questions?

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