

ASSE GULF COAST CHAPTER > ENERGY CORRIDOR
LESSONS LEARNED



LESSONS-LEARNED

CHEMICAL HANDLING

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Event Description – 9/13 November 2006

- Task: Dilute acid with distilled water
- Problem: Human Failure (Lapse) – add water first then acid OR acid first then water
- Routine task
- 3 minor incidents (unreported) in the past (9th Nov unreported)
- 1 incident report (13th Nov) – MTC due to chemical burns



Event Significance

- Based on evaluation of the task, **likelihood** could be expected to occur at some time
- Fatality **consequences** could be expected
- **Risk** is evaluated as Very High.

		Potential Consequences					
		L6	L5	L4	L3	L2	
		Minor injuries or discomfort. No medical treatment or measureable physical effects.	Injuries or illness requiring medical treatment. Temporary impairment.	Injuries or illness requiring hospital admission.	Injury or illness resulting in permanent impairment.	Fatality	
		Not Significant	Minor	Moderate	Major	Severe	
Likelihood	Expected to occur regularly under normal circumstances	Almost Certain	Medium	High	Very High	Very High	Very High
	Expected to occur at some time	Likely	Medium	High	High	Very High	Very High
	May occur at some time	Possible	Low	Medium	High	High	Very High
	Not likely to occur in normal circumstances	Unlikely	Low	Low	Medium	Medium	High
	Could happen, but probably never will	Rare	Low	Low	Low	Low	Medium



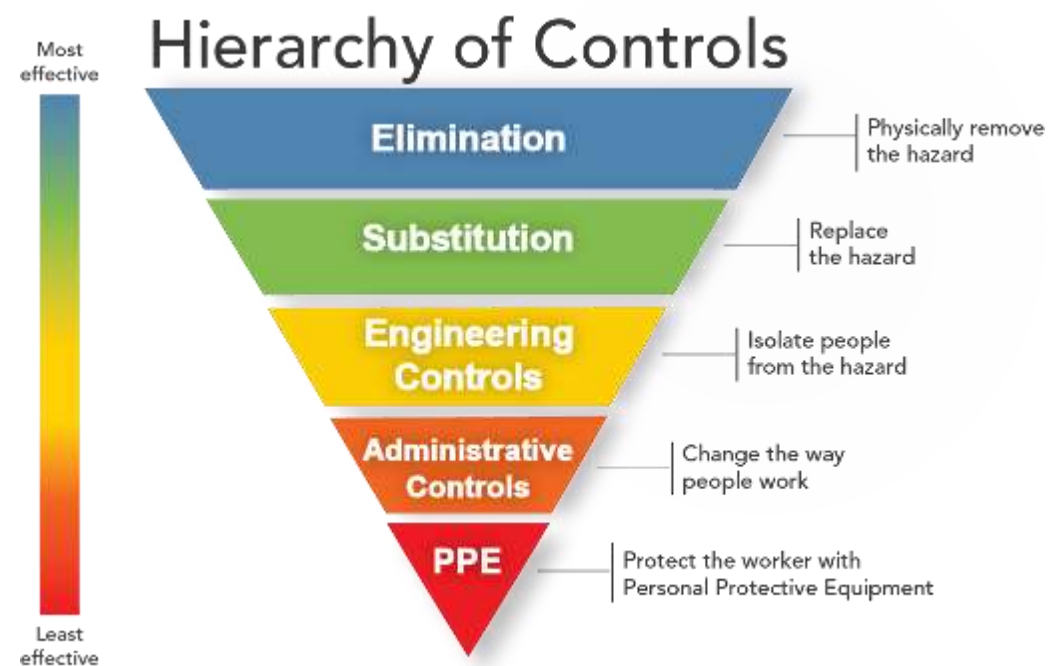
Event Cause(s)

- No mechanical means of mixing chemicals
- Lack awareness / understanding of the potential hazards
- Routine task
- Lack of Supervision during task (only there on the first and maybe second time of the new employee accomplishing this task.)



Event Prevention

- **Engineering** : Designed a device that automatically ensure the flow of the proper chemical. Set the concentration and open only one valve – the device would open the water first and then the acid with the correct amount.
- **Administrative**: Increase signage, introduced a simple checklist (words and pictures) and improved the required training

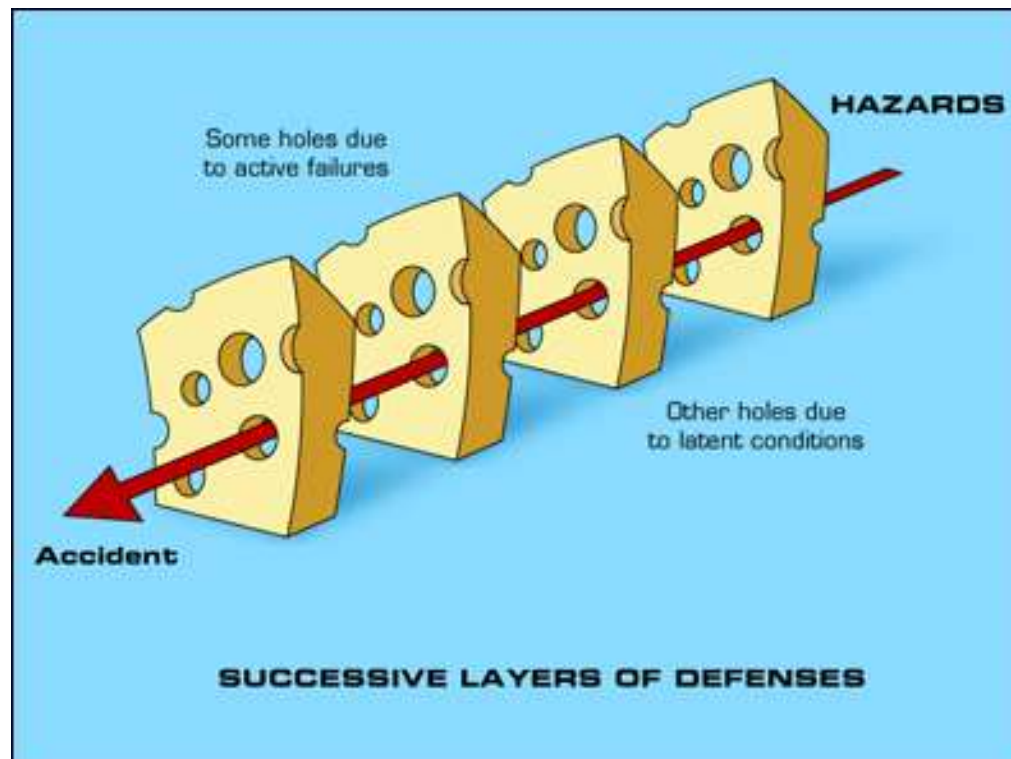




Summary

Do you have this situation at one of your facilities?

Please review your chemical locations and determine if this incident could happen again!





Post Event Significance

Engineering Controls partially removes the possibility of injury to personnel

		Potential Consequences					
		L6	L5	L4	L3	L2	
		Minor injuries or discomfort. No medical treatment or measureable physical effects.	Injuries or illness requiring medical treatment. Temporary impairment.	Injuries or illness requiring hospital admission.	Injury or illness resulting in permanent impairment.	Fatality	
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Likelihood	Expected to occur regularly under normal circumstances	Almost Certain	Medium	High	Very High	Very High	Very High
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	Could happen, but probably never will	Rare	Low	Low	Low	Low	Medium



2016-17 Topics

- December 2016: Confined Space
- January 2017: Chemical Safety
- **February: Working at Heights**
- March: Dropped Objects
- April: Electrical Safety
- May: Energy Isolations
- June: Layers of protection (design)
- July: Loss of Containment
- August: Fire Safety
- September: Lifting Operations
- October: Permit-to-Work.