Chemical Safety and Hazard Investigation Board
CONSEQUENCES OF A POOR SAFETY CULTURE

BP TEXAS CITY, TX
March 23, 2005

15 – FATALITIES
180 - INJURIES
Inherent in our Mission
PERSERVE LIFE SAFETY

To prevent loss of life we have to determine, understand, and explain root cause data
Inherent in our Mission

**PERSERVE LIFE SAFETY**

What we know...what we did
<table>
<thead>
<tr>
<th>Investigation</th>
<th>Date</th>
<th>Deficiency Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Fertilizer Explosion/Fire</td>
<td>17 April 2013</td>
<td>1,2,3,4,5,6,7,8</td>
</tr>
<tr>
<td>Hoeganaes Corp. Fatal Flash Fire</td>
<td>31 Jan 2011</td>
<td>1</td>
</tr>
<tr>
<td>Little General Store –Propane Exp.</td>
<td>30 Jan 2007</td>
<td>1,2,5,6</td>
</tr>
<tr>
<td>Herrig Brothers Farms-BLEVE</td>
<td>9 April 1998</td>
<td>1,5</td>
</tr>
<tr>
<td>DPC Enterprises –Glendale Release</td>
<td>17 Nov 2003</td>
<td>1</td>
</tr>
<tr>
<td>Citco Refinery – HF Release/Fire</td>
<td>19 July 2009</td>
<td>2</td>
</tr>
<tr>
<td>Bayer Crop Sciences – Waste Tank</td>
<td>28 Aug 2008</td>
<td>2</td>
</tr>
<tr>
<td>DPC Enterprises –Festus Release</td>
<td>14 Aug 2002</td>
<td>1,2,3,6</td>
</tr>
<tr>
<td>Honeywell Chemical</td>
<td>20 July 2003</td>
<td>3</td>
</tr>
<tr>
<td>First Chemical Reactive Explosion</td>
<td>13 Oct. 2002</td>
<td>3</td>
</tr>
<tr>
<td>MFG Toxic Gas Release</td>
<td>12 April 2004</td>
<td>5,8</td>
</tr>
<tr>
<td>EQ Haz Waste Fire-Explosion</td>
<td>5 Oct. 2006</td>
<td>8</td>
</tr>
</tbody>
</table>

**Deficiency Codes:**

1. Inadequate/poor training
2. Lack of ER Exercises
3. Inadequate/poor planning
4. Lack of communications
5. Improper notifications
6. No community/facility ties
7. No responder ties
8. No IMS/ICS
- Most root causes DON’T involve rocket science issues

- Many repeat or repetitive causes
The issue becomes one of, in many cases repetitive findings, related to deviation from basics even though there is full understanding of what deviation from them could mean.

What factors then are at play?
Typical repetitive issues

- Permit required confined space violations
- Hot work practice violations
- Improper handling hazardous materials
  - Flammables
  - Combustibles
  - Toxins
  - Corrosives
  - Explosives (or capable of exploding)
- Poor utilization or lack of proper PPE
- Poor utilization or lack of proper RPE

Over and over and over again
Deviation from basic fundamentals of acceptable safety practices:

• Why?

• Why are we seeing repeat “violations” involving issues that we know to be problematic?
THOUGHTS….

Is it a competence issue?
Is it a personnel issue?
Is it a individual/organizational issue?
Is it attitudinal in nature?
Is it behavioral in nature?
Is it related to risk?
Is it an ownership problem?
Is it a lack of commitment issue?
Is it a normalization issue?
Is it a matter of beliefs?
THOUGHTS....

It is believed that the intersection of all of these issues in aggregate constitutes “the culture”...
More commonly referred to as CULTURE
or in this case SAFETY CULTURE
Safety Culture-

What is it and why is it important

Per The American Institute of Chemical Engineers
AIChe ---- Why is it important
Management systems and their associated policies and procedures depend upon the actions of individuals and groups for their successful implementation?
Merriam Webster, 1983

The product of the individual/group values, attitudes, competencies and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's health and safety management.
Barnes, 2009

The values, attitudes, motivations and knowledge that effect the extent to which safety is emphasized over competing goals in decisions and behavior.
Health and Safety Executive, UK,

A healthy safety culture consists of shared beliefs, sound philosophy, healthy attitudes and practices.
AIChe---What it is

A more succinct definition has been suggested: “Safety culture is how the organization behaves when no one is watching.”
Identifying your type of safety culture

**Generative**

“Safety is how the business is run”

**Proactive**

“Safety is managed by workforce involvement”

**Calculative**

“Safety is managed by procedures & documentation”

**Reactive**

“Safety is only an issue if something happens”

**Pathological**

“Who cares as long as you don’t get caught”
Root Cause Analyses Aggregated
Safety Culture -

- Manners of interacting
- Thoughts
- Values
- Expected behaviors
- Practices
- Relationships
- Language
- Communication
- Courtesies
- Rituals
- Roles
- Customs
THOUGHTS....

Diagram:
- Culture
- Actions
- Behaviors
- Decisions
- Priorities and Practices
- Practices, Policies, Procedures
- Stories, Myths, Legends
- Beliefs, Attitudes, Values, Principles

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An argument for...

Management doesn’t know, what they don’t know

- Few top business leaders can tell you how to **develop and enhance their safety culture**.
- And more importantly why they should even want a safety culture in the first place.
Safety culture threats

Graphic courtesy of the NEB
...who appreciate that taking an obviously simplifying but potentially unsafe shortcut would be, quite simply, wrong.

And yet it happens all of the time. Why?

Human beings take shortcuts for a variety of reasons and may do so without unacceptable consequences. What does
NORMALIZATION OF DEVIANCE
Normalization of Deviance
Comparison of safety behaviors that establish the “culture”

The next series of slides and video clips point out consequences of a poor safety culture.

Data has been taken from agency investigations to help clarify certain issues.
BP FAILURES:

BP executive management / refinery management did not create a positive learning and reporting culture, which emphasizes the importance of reporting safety threats and effectively investigating accidents.
BP FAILURES:

Provide management oversight
Provide human and economic resources
Provide or model adherence to safety rules and procedures.
Cultural Analysis

BP America Refinery

Texas City, TX

March 23, 2005

15 Fatalities

180 Injured

43,000 Citizens at Risk

Isom Unit
Comparison of safety behaviors that establish the “culture”

The next series of slides and video clips point out consequences of a poor safety culture.

Data has been taken from agency investigations to help clarify certain issues.
AIChE—Why it is important

...the successful execution of the procedure requires the actions of properly trained individuals who understand the importance of the underlying intent, who accept their responsibility for the task, and
A Poor Safety Culture...Scott

Safety planning...

• Little or none

• That which exists focuses on quick and cheap
A Poor Safety Culture…Scott

Safety planning…

• Little or none

• That which exists focuses on quick and cheap
Exposed to fire
High risk area
Massive fires killed 15
A Poor Safety Culture…

No balance between safety and profitability

- Profitability only concern in organization

- Health and safety seen as cost and only priority is avoid extra costs
25% Reduction fixed costs
Forgo training
Decreased mechanical integrity
A Poor Safety Culture... Scott

Lack of training

- Only conducted when regulations required it
- Safety training seen as inconvenience expense – not an investment
Did not understand hi level alarm
Vented to 50’s era atmospheric stack
A Poor Safety Culture...Scott

No reporting of hazards

- Only happen after serious events
- Analysis does not consider human factors or go beyond legal requirements
- Protect the company and its profits becomes the mantra
Massive potential hazards-no warning
A Poor Safety Culture…

No reporting of hazards

- Hazards and unsafe acts never reported
- Reporting discouraged
- Many incidents go unreported
Prior incidents and near misses not communicated
A Poor Safety Culture…

General lack of awareness of consequences of actions which could lead to a catastrophic disaster
Prior incidents and near misses not communicated
Possible catastrophic failure
A Poor Safety Culture…Scott

Inevitable consequences of actions led to catastrophic disaster
Thick black smoke billowed Shelter in place – 43,000
A Poor Safety Culture… Scott

No commitment from workforce

• Lack of commitment to safety from management mirrored by workforce
Safety culture survey
Production above all
A Poor Safety Culture…

Feedback loop is not closed after an accident

• Following an accident the focus is on the employee, and they are often disciplined.

• The priority is to limit damage and get back to production.
A Poor Safety Culture... Scott

Management blames individuals for accident

- Individuals blamed - accidents and injuries part of the job
- Responsibility for accidents belongs to those involved
- Procedures bypassed and violated
- Deviations normalized
Supervisor left
Violation of procedure
BP America Texas City Refinery and Bayer Crop Sciences

And are discussed here with an expectation of learning

Because doing the same things over and over again, without any change and expecting a different result is defined as….

...INSANTITY
Thwarting Safety Cultural Threats
So where do we go from here?

By defining a strong safety culture
By thinking/talking about risk
By not accepting the status quo
By providing as much information as possible to SERCs/LEPC’s
By planning, preparing, establishing specifically PS tasked work groups
Safety Culture Improvement

So where do we go from here?

By not waiting to respond
By thinking/talking about risk
By training personnel on process, procedures and risk consequences
By providing information to LEPC’s
By doing what you are doing!
So where do we go from here?

We have to stop making like an ostrich, sticking our heads in the sand and believing it will improve if we do nothing. Start talking, start doing and believing together we can move toward……
So where do we go from here?

We have to stop making like an ostrich, sticking our heads in the sand and believing it will improve if we do nothing. Start talking, start doing and believing together we can move toward......
Why are we talking about this..

We are discussing these issues here with an expectation of learning

Because doing the same things over and over again, without any change and expecting a different result is defined as....

...INSANTITY
The How...
We do it together - The Goal of Zero Harm

You...
Me...
Coworkers...
Colleagues...
Friends...
Relatives...
Anyone who cares about life safety
BASIC SAFETY PHILOSOPHY FOR SUCCESS

A NEW SAFETY CULTURE

- All accidents are preventable.
- No job is worth getting hurt for.
- Every job will be done safely.
- Incidents can be managed.
- Safety is everyone’s responsibility.
- Continuous improvement.
- Safety as a “way of life” for 24 hours/day
- All individuals have the responsibility and accountability to identify, eliminate or manage risks associated with their workplace.
- Legal obligations will be the minimum requirements for our health & safety standards.
- Individual will be trained and equipped to have the skills and facilities to ensure an accident free workplace.

What’s your company approach to safety?

Prepared By: E Dale Bull
Safety Culture Improvement

1. Establish safety as a core value
2. Provide strong leadership
3. Establish and enforce high standards of performance
4. Formalize the safety culture emphasis/approach
5. Maintain a sense of vulnerability
6. Empower individuals to successfully fulfill their safety responsibilities
7. Defer to expertise
8. Ensure open and effective communications
9. Establish a questioning/learning environment
10. Foster mutual trust
11. Provide timely response to safety issues and concerns
12. Provide continuous monitoring of performance
Thank You

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