

# **AIGA 2005 Meeting**

The AIGA logo consists of the letters "AIGA" in a bold, white, sans-serif font, centered within a solid blue square.

## **Improving safety through Operational Discipline**

**Dennis Johnson  
Praxair, Inc.**

**Singapore  
August 30, 2005**

# Improving safety through Operational Discipline

**Dennis Johnson**  
**Praxair, Inc.**



# Hazard Recognition



**Burns**



**Striking Objects**



**Asphyxiation**



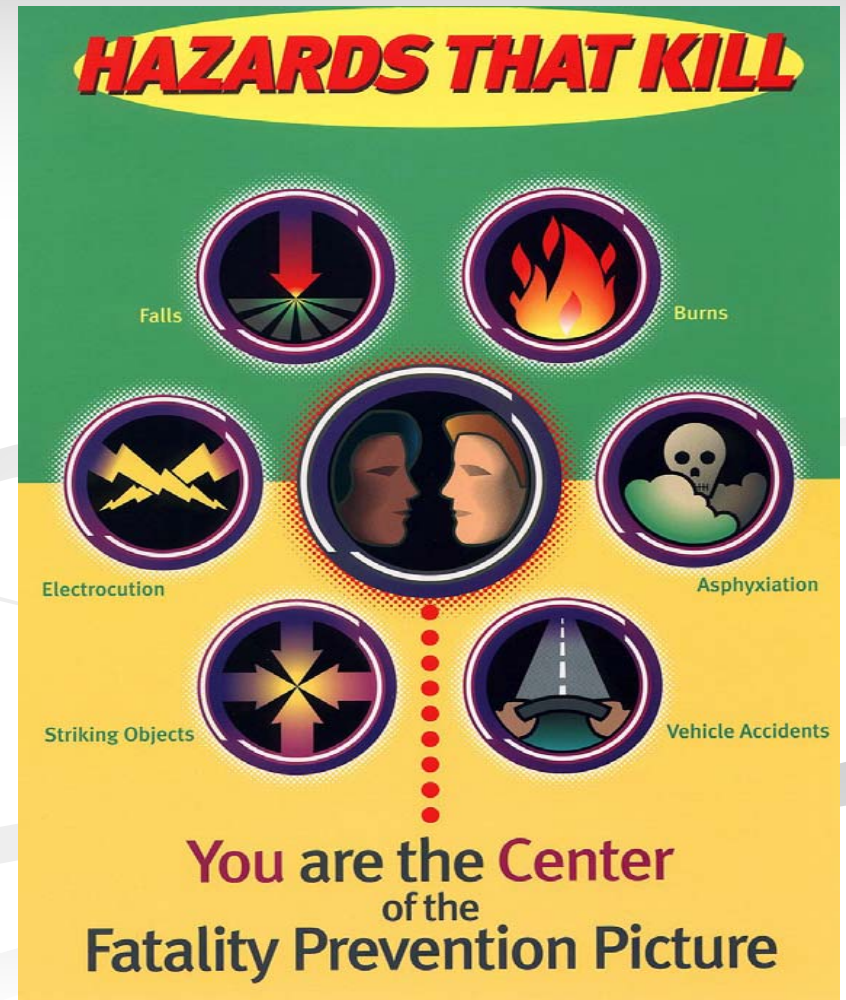
**Falls**



**Electrocutation**



**Vehicle Accidents**



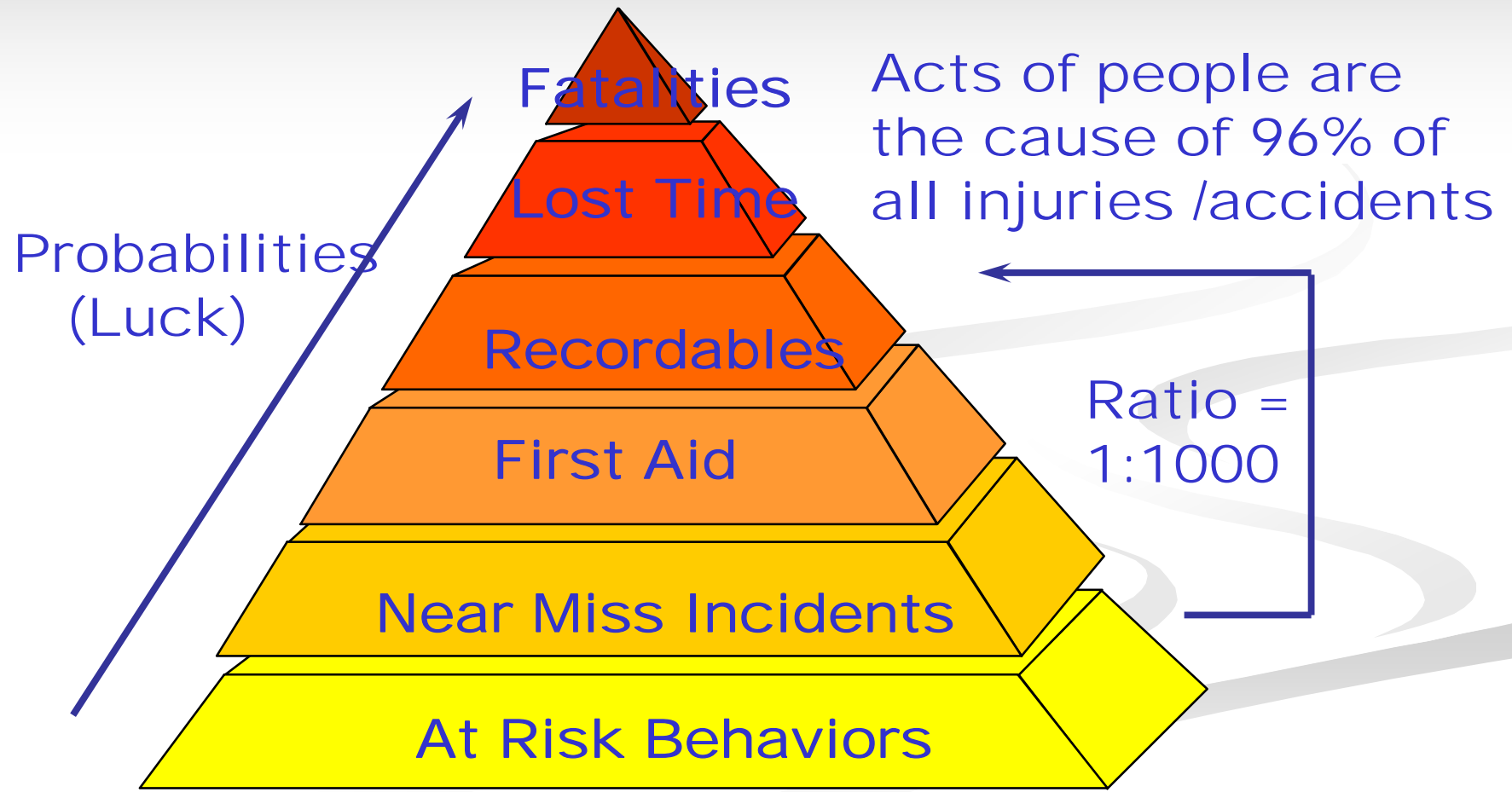
# Eliminating At Risk Behavior



## What is At Risk Behavior?

**Any behavior, activity or act that has inherent risk. It is a behavior, activity, or act that, if repeated with enough frequency will result in an accident or injury to yourself or to someone else.**

# Eliminating At Risk Behavior





# Eliminating At Risk Behavior

AIGA

**PRAXAIR**  
SOS Safety Observation System  
DRIVING & TRANSPORTATION

**TRAINING PURPOSES ONLY  
NOT FOR DISCIPLINARY ACTION**

S	AR	N/A	
<b>PREPARATION</b>			
1			Inspect entire vehicle prior to entering
2			Check tire inflation
3			Secure all equipment prior to moving
4			Maintain fuel nozzle control when fueling
5			Check mirrors for proper alignment
6			Check 5th wheel for proper connection
7			Emergency Response Handbook in cab
<b>OCCUPANT PROTECTION</b>			
8			Properly fasten safety belts prior to driving
<b>ENTERING/EXITING CAB</b>			
9			Use 3 point contact when entering/exiting
<b>STARTING/STOPPING</b>			
10			Full stop, fasteners on, at all RR stops when carrying load
11			Anticipate safe braking distance
12			Perform smooth, slow stops
13			At traffic light/stop - keep safe distance behind vehicle
14			Don't park on side of the road
<b>FOLLOWING DISTANCE</b>			
15			Maintain safe distance behind vehicle
16			Adjust to road & weather conditions
<b>BACKING</b>			
17			Walk route before backing
18			Use cones, sound horn prior to backing
<b>TURNING &amp; CHANGING LANES</b>			
19			Use turn signals when turning & changing lanes
20			Turn signal is on until trailer is in line with cab
<b>IN-MOTION</b>			
21			Check traffic in side mirrors every 10-12 seconds

## Safety Observations

- Observe
- Coach
- Measure



# 2002 – Fatality Incident

- May 2002 incident Salvador, Brazil
- Flash fire – 2 fatalities
- Long term employees – 12 & 15 years

## Investigation Findings

- Acetylene generator opened – not purged
- Employees not wearing required PPE
- Root Cause = *Failure to follow procedures*

# What we learned

- Hazard recognition and behavior based safety programs were effective in reducing personal injury rates
- Serious incident and fatality performance was not improving – *why?*
- Review showed a common issue = *failure to follow procedures and rules*



# Operational Discipline Is Key To Preventing Fatalities

- Mexico, 1997 - 2 confined space entry fatalities - *Failure to follow procedures*
- North America, 1998 - Driver severely injured when customer tank ruptured - *Failure to follow procedures*
- Brazil, 2001 - Operator killed by falling pallet elevator - *Failure to follow procedures*
- Israel, 2001 - Nitrous oxide plant explosion fatality - *Lack of adequate procedures*
- Brazil, 2002 - 2 Acetylene generator flash fire fatalities - *Failure to follow procedures*

# Assessments Indicate Lack of Discipline



## Audit findings:

46 sites, 268 Process Safety findings:

- Procedures, training 117 - 44%
- Equipment design, configuration 98 - 36%
- Maintenance, calibration 32 - 12%
- Record keeping 21 - 8%

# Operational Discipline



*Operational Discipline* is the dedication and commitment by the organization to **perform their work** consistent with the requirements of the managing system and defined **procedures**.

# Operational Discipline

What are characteristics of organizations with a high level of operational discipline?



# Characteristics of Operational Discipline

- **Leadership is by example** - enforcement of rules and refusal to accept deviations
- **Up-to-date documentation** and procedures
- **Absence of shortcuts** and at-risk behaviors – practices are consistent with procedures
- Strong sense of **teamwork** - everyone is important
- Active lines of **communication** up and down the organization

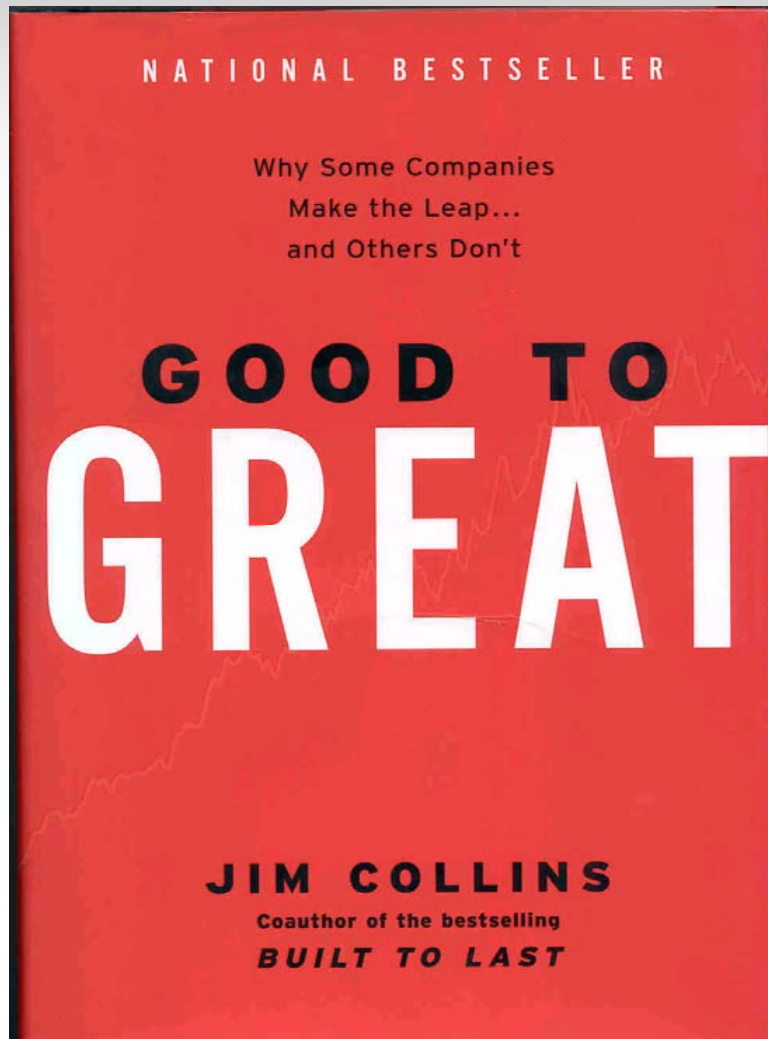
# Characteristics of Operational Discipline

- **High level of training** - important skills are practiced and proficiency must be demonstrated
- **Shared values** - actions are driven by common beliefs
- Sufficient **resources** are provided
- Excellent **housekeeping**
- **Pride** in the organization



# Good to Great

AIGA



- Studied companies that went from “good to great” and sustained the results for at least 15 years
- Identified what differentiated these companies from others
- Good-to-great companies returned 6.9X the financial performance of the general market

# Business excellence requires discipline



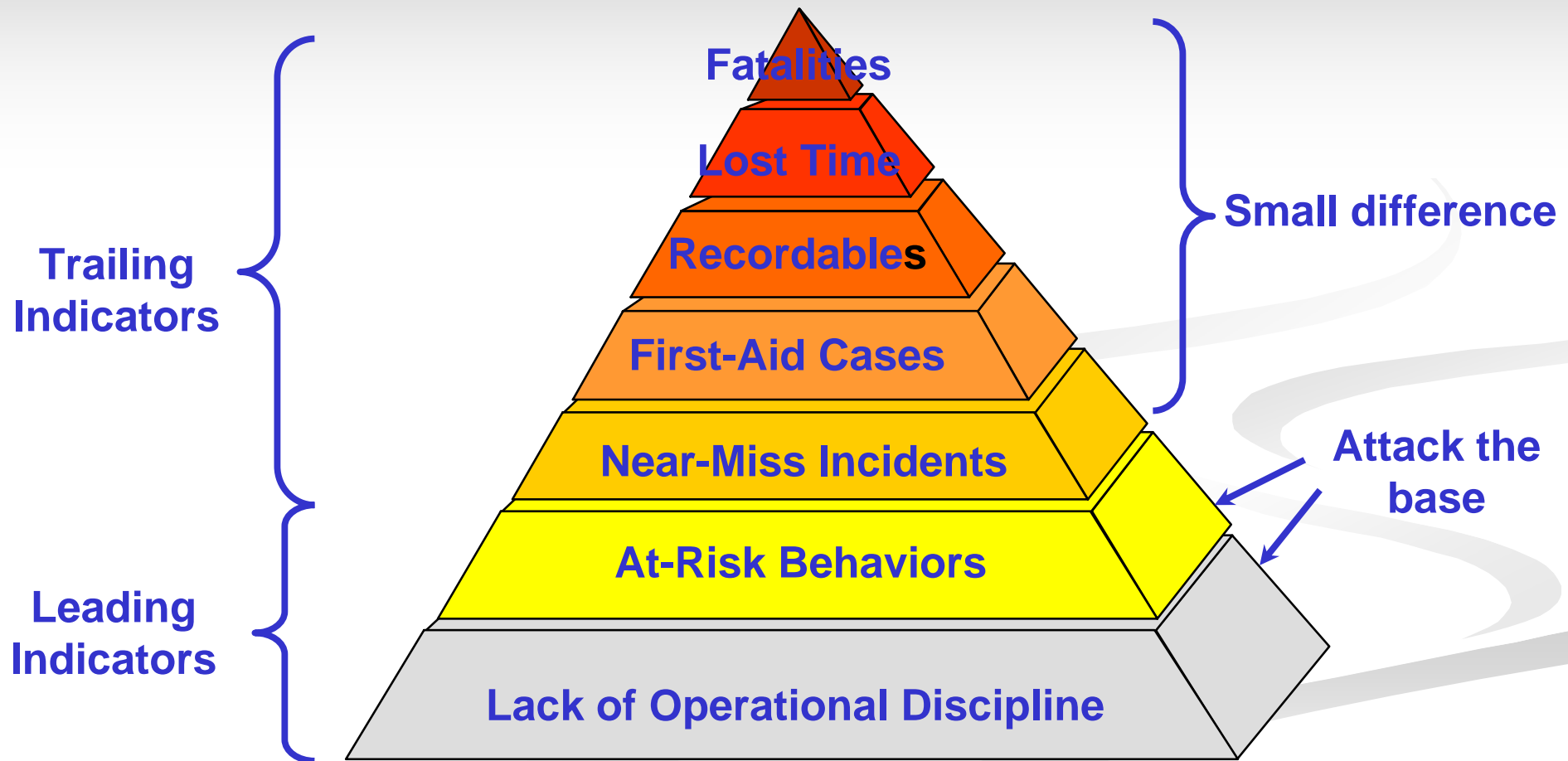
# The Power of Discipline

"If I had to pick one word that captures the flavor of what we uncovered in this study, it would be *discipline*."

"When you have *disciplined people* you don't need hierarchy; when you have *disciplined thought* you don't need bureaucracy; when you have *disciplined action* you don't need excess controls."

*Good to Great* - Jim Collins, 2001

# Safety model



# Implementing Operational Discipline



- **Organization and facility-specific gap analysis of characteristics**
- **Led by operations, facilitated by safety**
- **Ongoing work process = culture change**
- **Visible tracking of progress**
- **Include in audits and incident investigations**

*Up-to-Date Documentation*

*Leadership by Example*

*Active Communication*

*High Level of Training*

*Absence of Shortcuts*

*Sense of Teamwork*

*Shared Values*

*Housekeeping*

*Resources*

*Pride*

Thank you!