

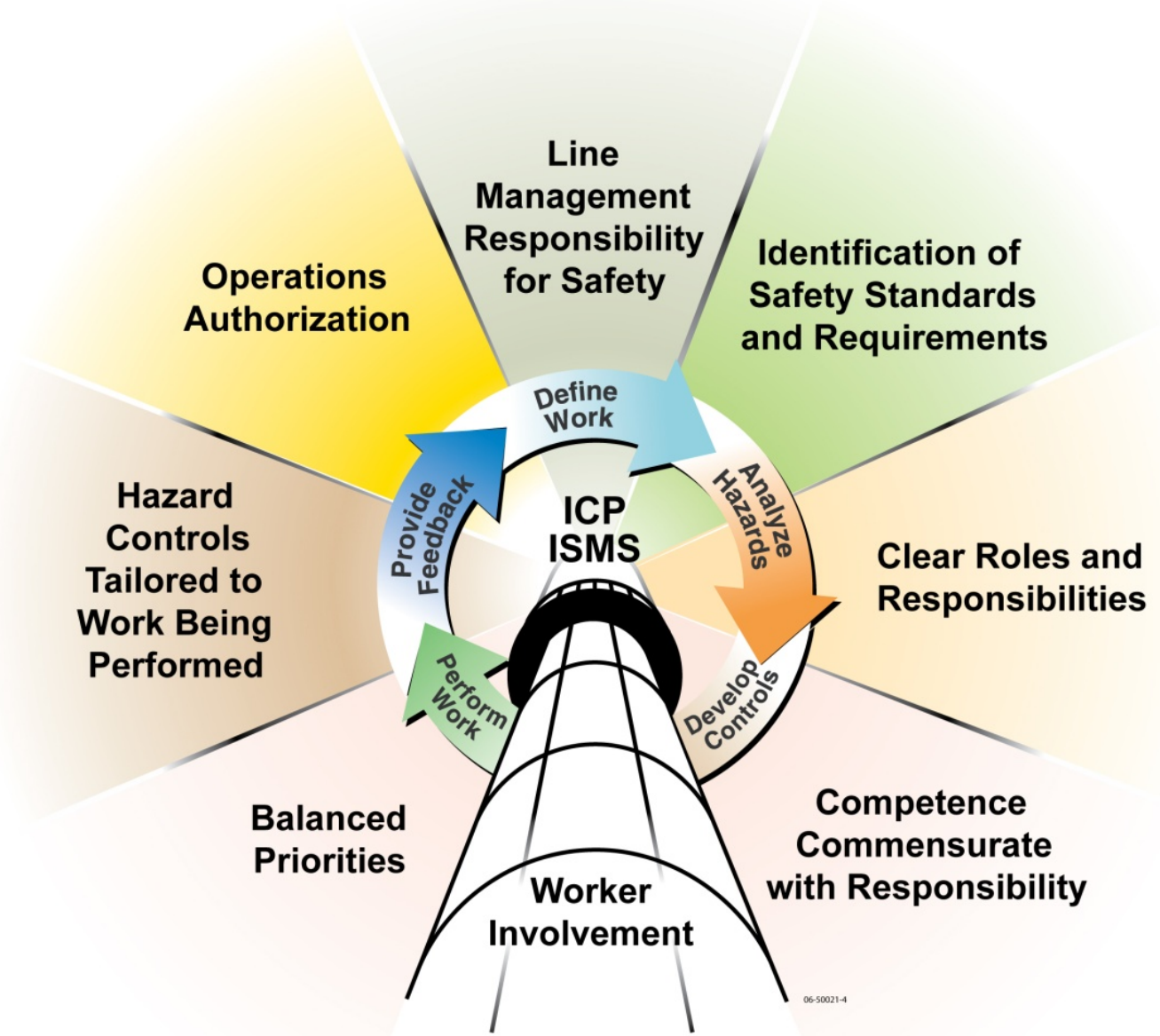
The background of the slide features a large, semi-transparent seal of the United States Nuclear Facilities Safety Board. The seal is circular with a yellow outer ring containing the text "UNITED STATES NUCLEAR FACILITIES SAFETY BOARD" in blue. Inside the ring is a blue circle with a white eagle with spread wings in the center. Below the eagle is a green laurel wreath. The text "DEFENSE" is written vertically on the left side of the inner circle, and "NUCLEAR FACILITIES SAFETY BOARD" is written vertically on the right side.

# **Safety 360**

## ***Enhancing Worker Situational Awareness***

Peter S. Winokur, Ph.D.  
ISM Champions Workshop  
September 15, 2011

*Thanks to Rick Verhaagen, Jeremiah MacSleyne,  
Doug Minnema, and Neysa Slater-Chandler*



***Thanks to CH2M•WG, Idaho. LLC***

Safety Culture (and ISM), P. S. Winokur, ISM Champions Workshop, Brookhaven National Laboratory, November 28, 2007.

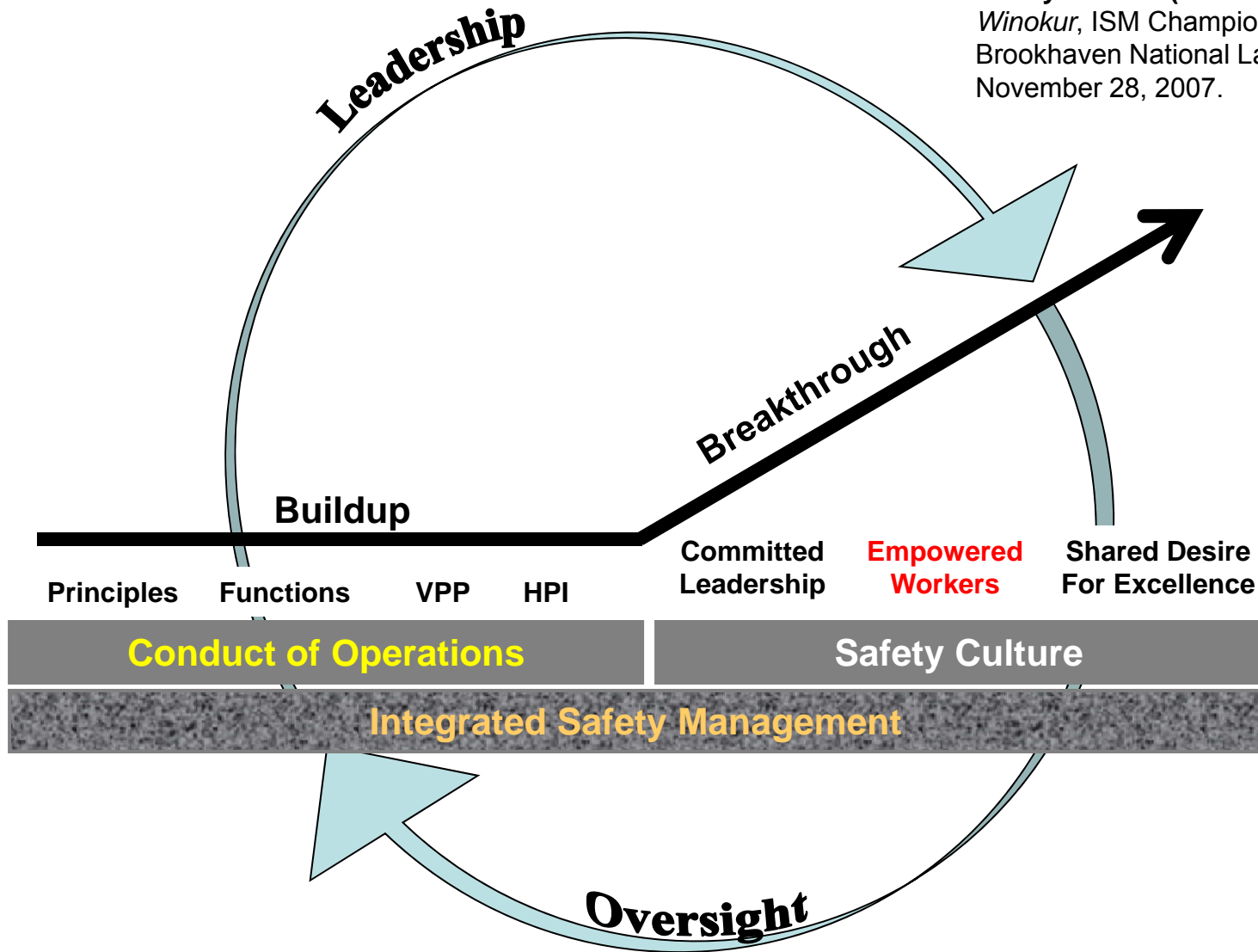


Figure adopted from: Jim Collins, Good to Great; HarperCollins Publishers, NY; 2001.

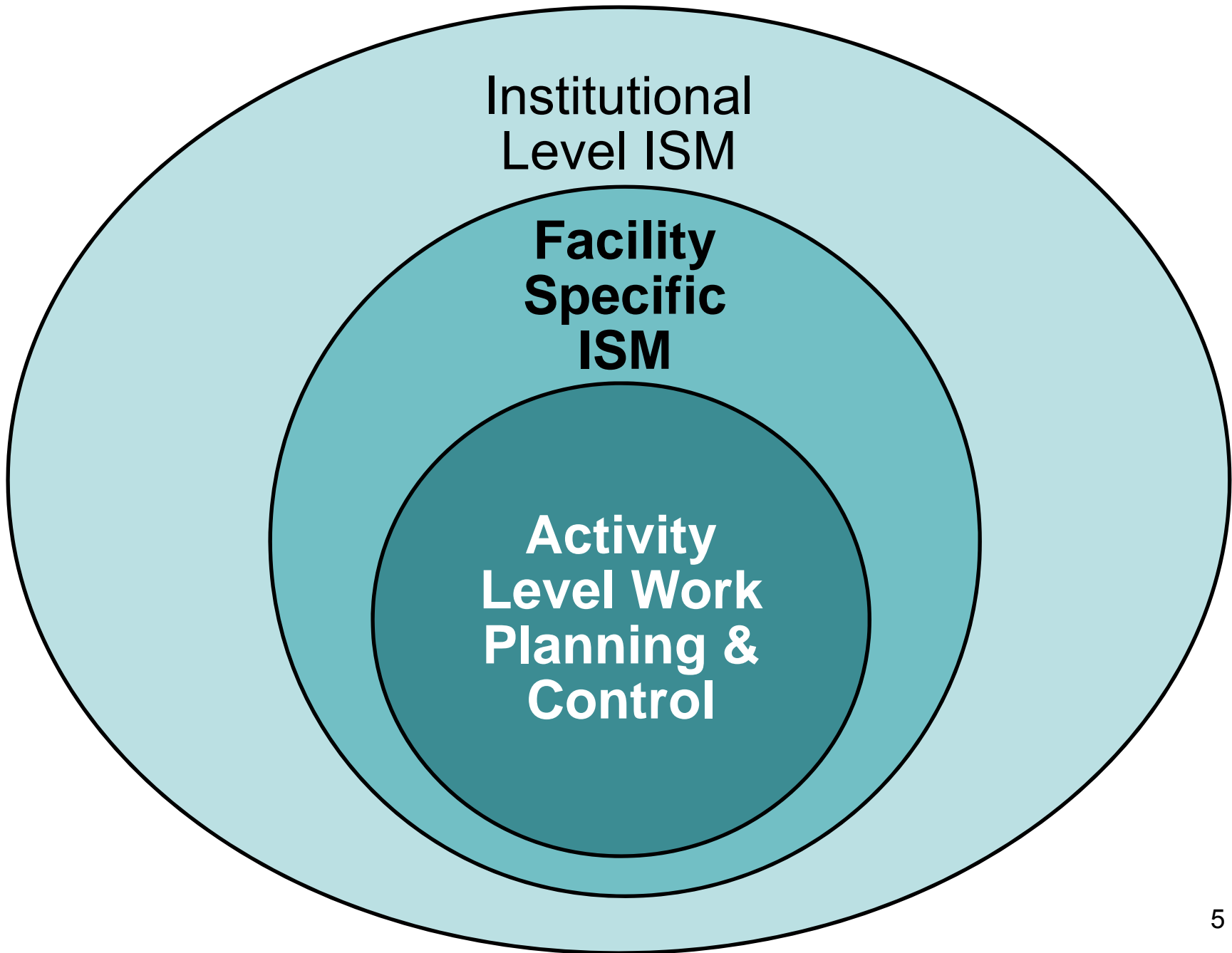
# Empowered workers

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**How do you know when everything works right?**

[video clip link removed from this slide]



Institutional  
Level ISM

**Facility  
Specific  
ISM**

**Activity  
Level Work  
Planning &  
Control**

# Activity-Level Work Planning and Control



Planning teams work together to:

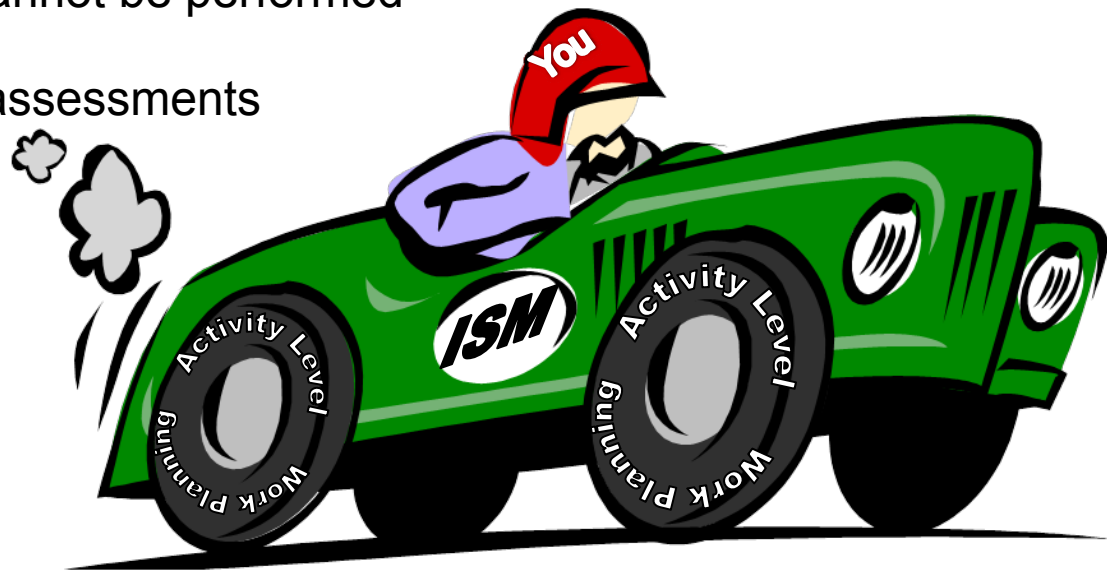
- Identify scope of the work and steps necessary to complete it
- Identify and analyze the hazards associated with work site and each work step (this is not an academic exercise)
- Develop and implement controls to ensure work can be accomplished safely
- Perform work using the prescribed controls
- Identify and communicate future improvements for activity-level work



# Activity-Level Work Planning and Control



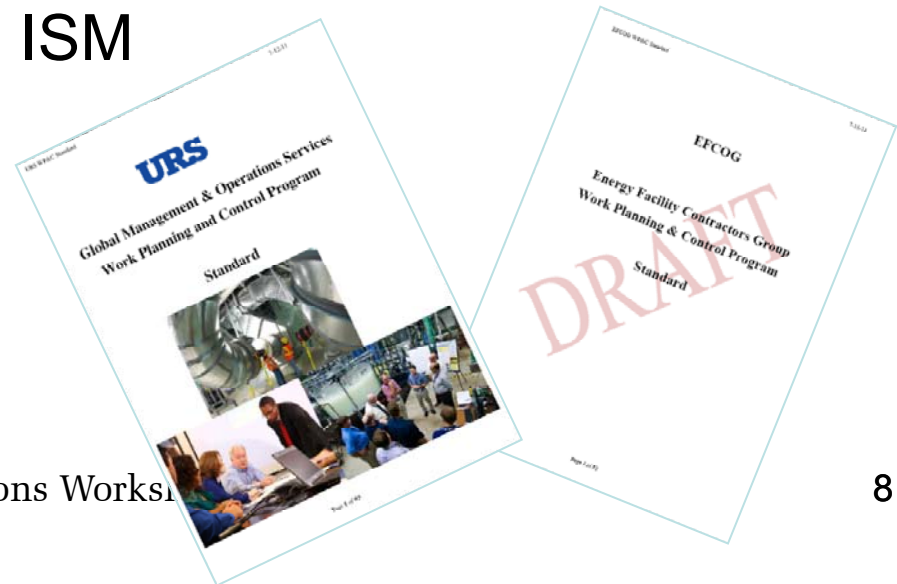
- Where the integrated safety management rubber meets the road.
- Applicable to all types of work activities including operations, maintenance, **R&D**, D&D, construction, etc.
- Board reviews have identified inconsistencies and recurring weaknesses in implementation across the complex.
  - Hazards not identified or inappropriately addressed
  - Instructions not bounding or without sufficient detail
  - Work instructions cannot be performed as written
  - Oversight and self assessments are not always successful at identifying and correcting weaknesses and learning lessons



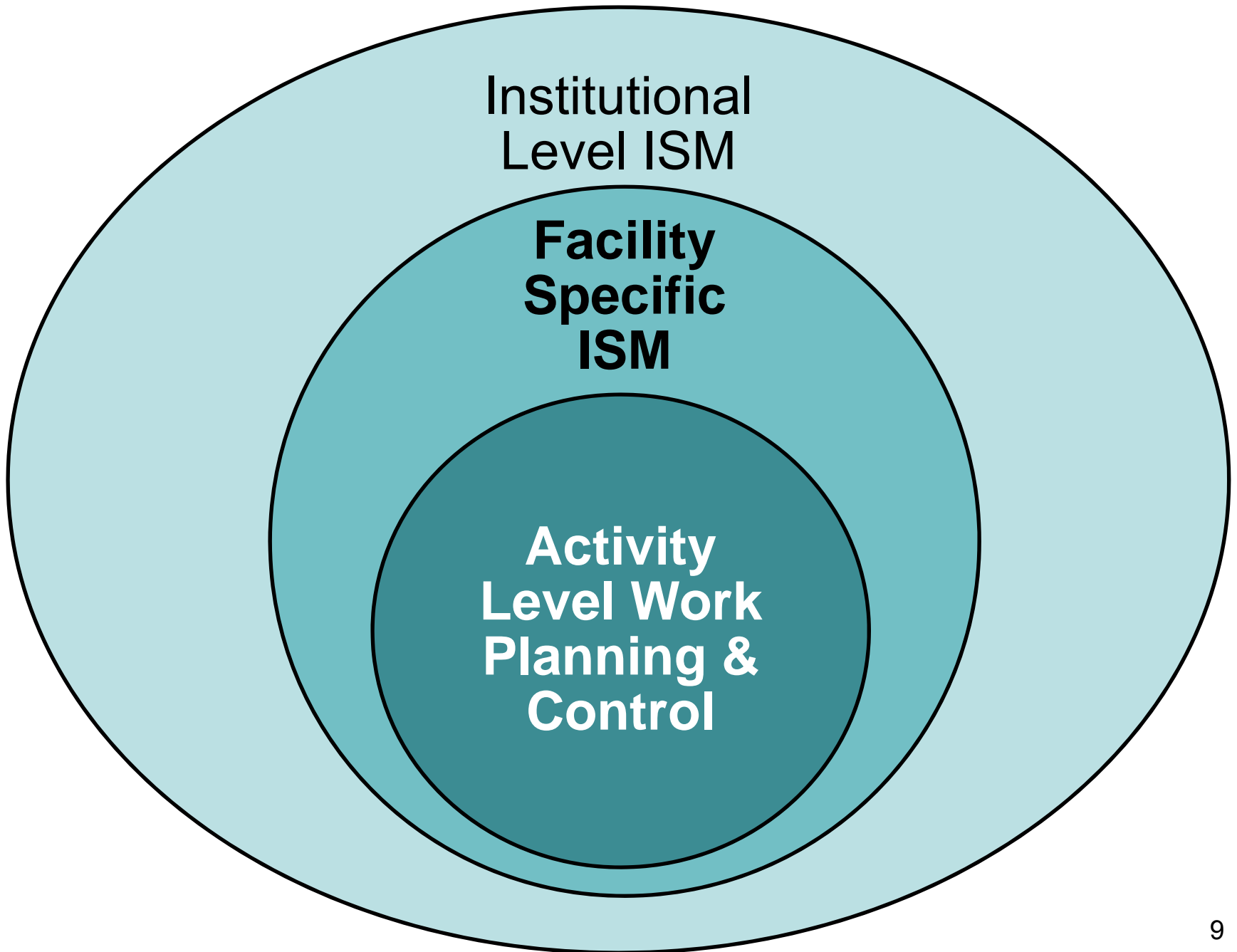
# Improving Activity-Level Work Planning and Control



- URS is implementing its own recently developed work planning standard.
- EFCOG is working to develop a complex wide standard.
- A “Gold Standard” for how to develop a world-class work planning and control program would greatly benefit the complex. Don’t simply document what already exists.
- Ensure integration with the ISM and Oversight Guides and the work planning standard.







Institutional  
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Institutional  
Level ISM

**Facility  
Specific  
ISM**

**Activity  
Work  
Planning  
and Control**

**YOU**

# The Center Circle



- YOU are the center of your safety circle
- YOU are the main contributor to your own safety
- YOU are an important safety influence on those you work with
- YOU help ensure safety at your facility
- YOU are a leader in your workplace

**Lead by Example!**



# Esprit de Corps

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- Nobody should work in complete isolation
- You should be aware of what your coworkers are doing
- You should be sure they know what you are doing
- Share with them your concerns and observations
- Listen to their concerns and observations
- Keep an eye out for them, they will do the same for you

**You all share your workplace, make it a safe one!**



# Mindfulness



- Remain actively aware of others in the workplace around you
- Watch for unexpected situations
- Be preoccupied with updating knowledge
- Anticipate the unexpected
- Avoid the arrogance of success
- Recognize near-misses as potential dangers; not successful avoidances

**Anticipate the worst!**  
**Be pleasantly surprised if**  
**it does not happen!**



# Knowledge



- You can never understand your workplace too well
- You should never stop learning how to do things better
- You should always try to learn from others
- You should always encourage others to learn

**Change is inevitable, learn from it!**



# Experience



- You should always value experience and practice
- If a skill is important to your safety, practice it
- Do not assume “skill of the craft” means “easy to do”
- Use the most experienced workers as mentors
- Use gatherings to share experiences



**Broaden your horizons,  
experience something new!**

# Communication

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- Maintain regular contact with your coworkers and others
- When your plans change, tell them about it
- Know who to call when unexpected things happen
- Formality of conversation should match gravity of situation
- Be careful not to let idle talk distract from safe operations

**“Seek first to understand, then to be understood”**



# Discipline



- All work requires a degree of discipline, some more than others
- Procedures, training, and supervisors should convey the level rigor needed
- Determine level of discipline needed before doing the job, not during it
- Don't let a need for discipline become a distraction to safety
- Don't let conflicting priorities distract from disciplined operations

**Discipline is about doing the right thing consistently!**

# Worker Responsibility



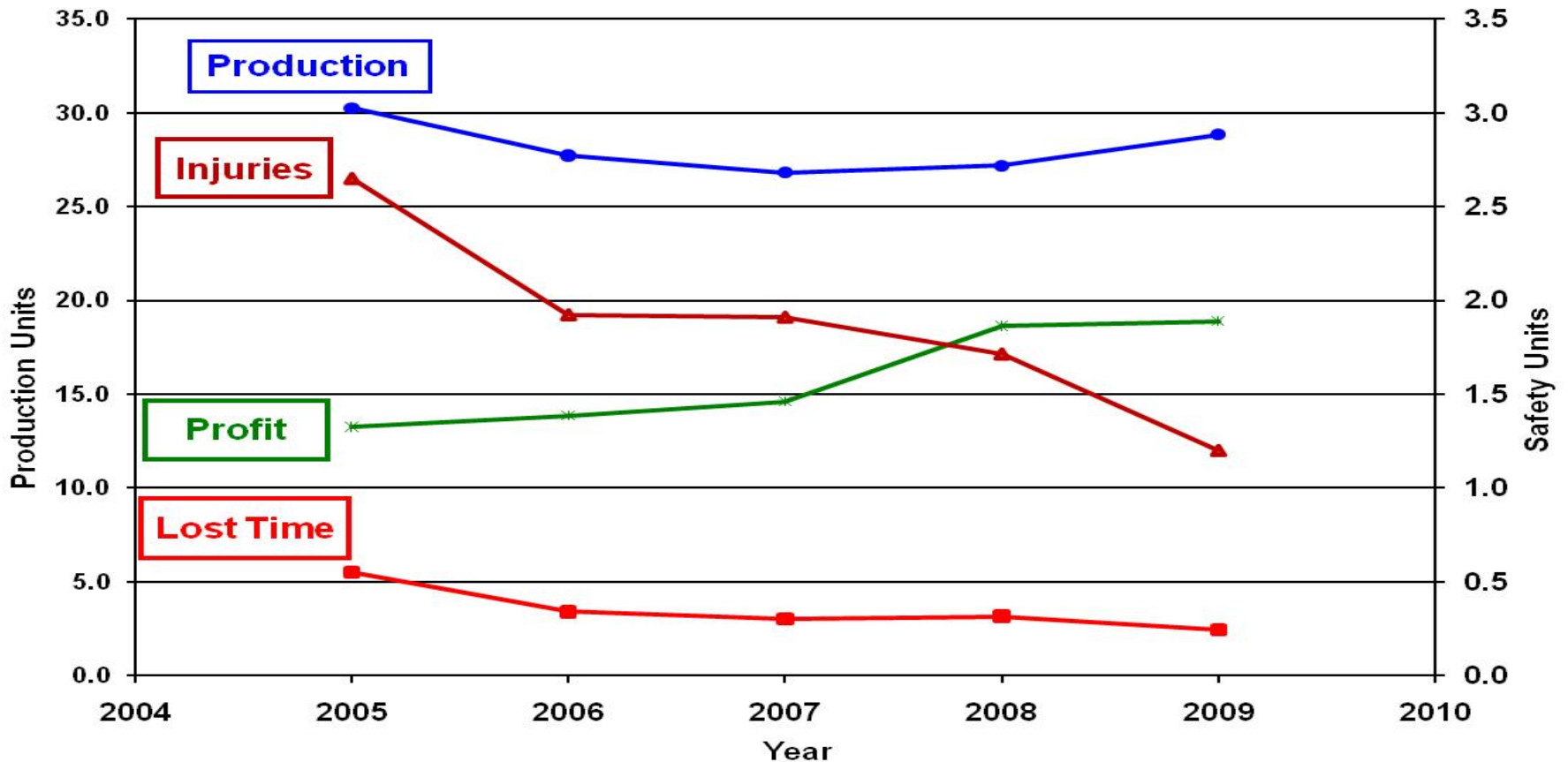
- Every day, we all have a distance to go before we rest
- To arrive safely, recall that you are the central safety circle
  - **Esprit de Corps**
  - **Experience**
  - **Mindfulness**
  - **Communication**
  - **Knowledge**
  - **Discipline**

# Pop Quiz



## Whose Performance Metrics are these?

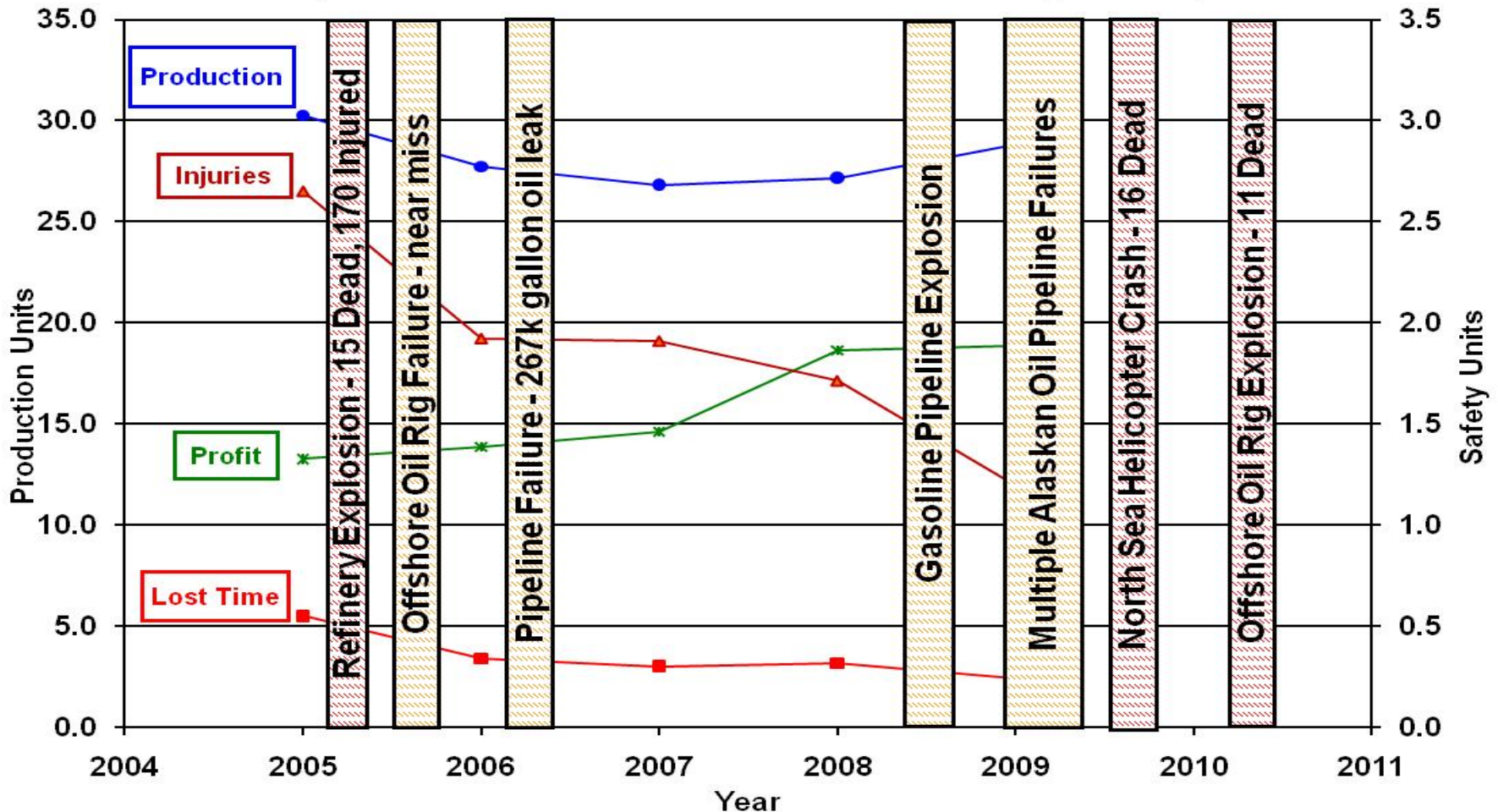
(All Values Normalized to Hours Worked per Year)



# A Second Clue



(All Values Normalized to Hours Worked per Year)



# Answer: British Petroleum

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***“BP focused on safety efforts dealing with slips, trips, falls, and vehicle accidents, even as catastrophic process risks were overlooked or not controlled.”***

*Testimony of the Carolyn W. Merritt, Chairman, Chemical Safety Board, House Committee on Energy and Commerce, Subcommittee on Investigations and Oversight, May 16, 2007*

***“The immediate causes of the Macondo well blowout can be traced to a series of identifiable mistakes made by BP, Halliburton, and Transocean that reveal such systematic failures in risk management that they place in doubt the safety culture of the entire industry.”***

*Report to the President; National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling; January 2011*

**(Note: Production and safety data extracted from British Petroleum 2010 Sustainability Report)**



U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD

# INVESTIGATION REPORT

## REFINERY EXPLOSION AND FIRE

(15 Killed, 180 Injured)



### KEY ISSUES:

SAFETY CULTURE

REGULATORY OVERSIGHT

PROCESS SAFETY METRICS

HUMAN FACTORS

**BP**

TEXAS CITY, TEXAS

MARCH 23, 2005

REPORT No. 2005-04-I-TX

MARCH 2007

# We Need Better Use of Metrics

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***“The prizes congratulate corporations for reducing incidents such as slips and falls, which promote complacency ... [but] fail to implement process safety management to eliminate workplace catastrophes that kill.”***

*Safety Awards That Endanger Workers’ Lives*, Leo W. Gerard, USW International President, May 28, 2010.

**It’s time to reduce reliance on DART/TRC as a primary metric for demonstrating the effectiveness of DOE’s safety programs.**

# Conclusions

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- Implementation of Integrated Safety Management at the Institutional, Facility, and Activity Level are critical to the safe performance of mission; use them to your safety advantage
- YOU are the center of your safety circle, YOU call the balls and strikes
- YOUR involvement determines the quality of safety in your workplace
- DOE and its contractors have made good progress in Activity-Level Work Planning, but more is needed; the Board encourages the development of improved standards and guidance
- The Board is concerned that an overreliance on DART/TRC can lead to complacency and distract from preventing low-probability, high-consequence accidents