



DOE Safety Trends: Management Excellence

*Waste Management Conference
Seminar 17*

February 28, 2011



**Deepwater Horizon
April 19, 2010
Awarded for Excellent Injury
Prevention Performance (TRC/DART)**



**Deepwater Horizon on
April 20, 2010**



DOE Key ES&H Outcomes 2004-2010



	2004	2005	2006	2007	2008	2009	2010
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Worker Safety & Health Goal 1: **No fatalities**

Total	6	1	2	2	4	1	3
(Vehicle)	0	0	1	1	3	1	0

Worker Safety & Health Goal 2: **No radiological exposures > 2 rem**

Total	2	1	0	1	1	0	1
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Environmental Goal 1: **No radiological releases above regulatory limits**

Total	0	0	0	1	0	0	0
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Environmental Goal 2: **No chemical/hazardous material releases above regulatory limits**

Total	1	2	3	2	3	2	0
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Infrastructure Goal 1: **No losses > \$5 million**

Total	0	0	0	1	0	0	0
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While not at zero yet, DOE generally has few significant events



DOE Safety Performance



Nuclear Safety may be seeing improvements due to recent DSA reviews and updates; eliminating old buildings; new construction; experience cleaning up; and reduced operating tempo/footprint.

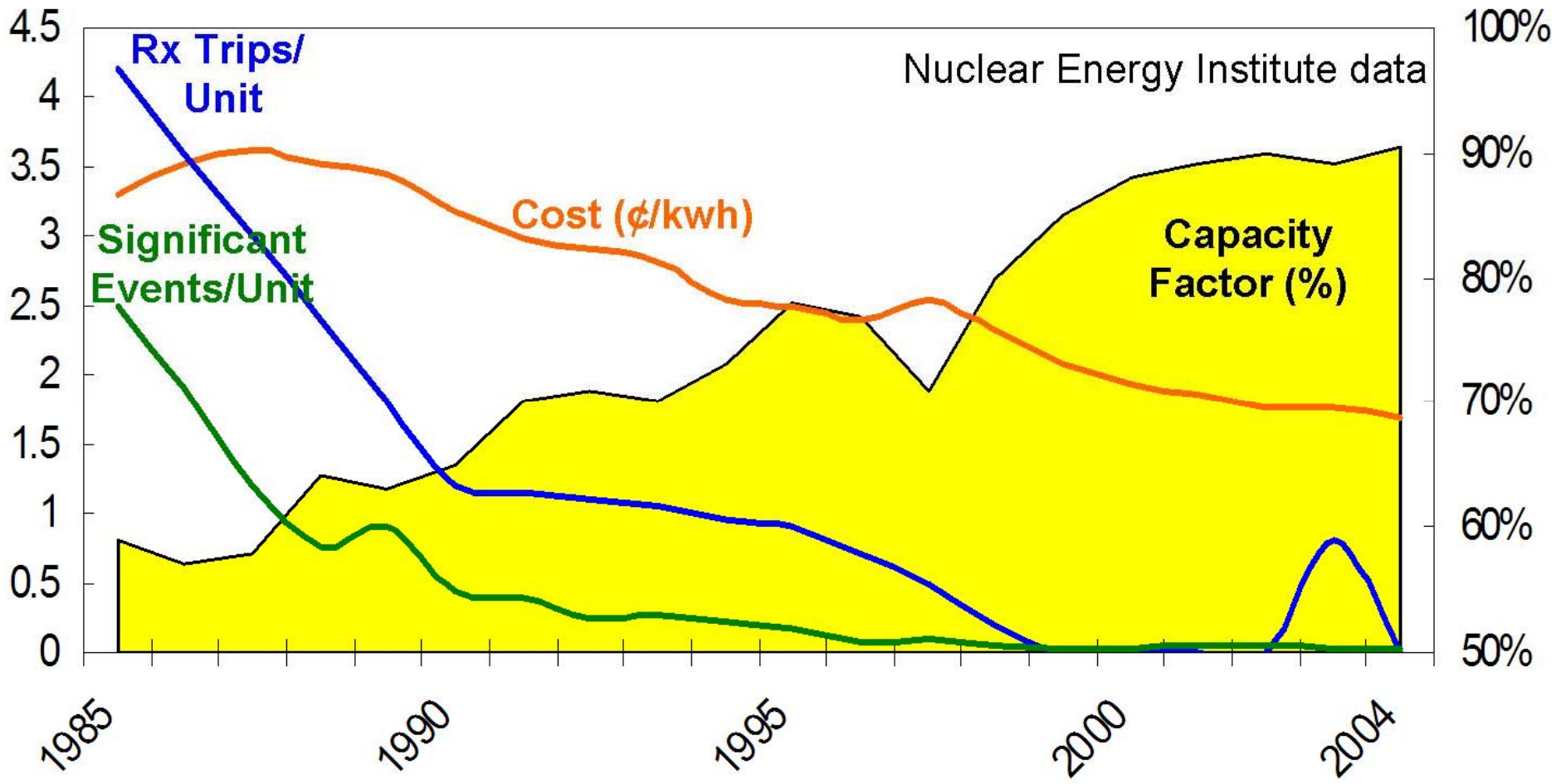
Radiation Protection (ALARA) benefits not only from better procedures, but from less overall exposure.

Injuries in general have been reduced in frequency and perhaps severity.

We still have issues around hazardous energy and older infrastructure.



Nuclear Power Industry Performance



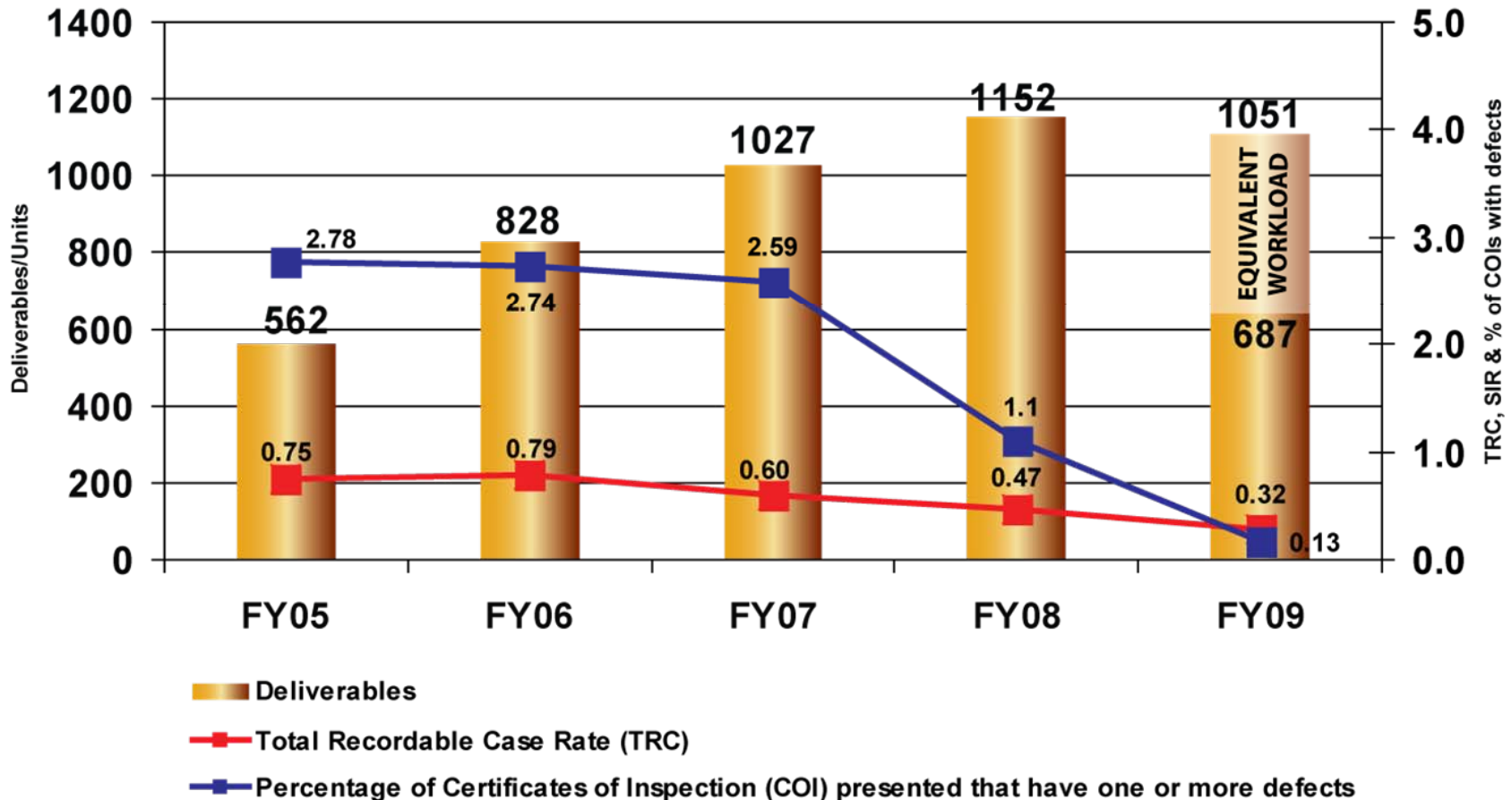


Pantex Example



SAFETY/QUALITY/PRODUCTION PERFORMANCE

March 31, 2009





Three Barriers to Management Excellence in DOE



Compliance mindset

- “Shoot for the minimum...or less, only do it because we have to”

Blame Culture

- “Punish those who ‘screw up’, even the smallest infraction”

Isolationism

- “We are unique and therefore have nothing to learn from others...or we are just smarter”



Compliance Mindset versus Risk-Informed Decision Making



Does anyone believe that a "fully compliant" safety program is actually "safe"?

Rule makers cannot know beforehand all the situations in our complex and variable environments.

Compliance mindset is very strong in DOE.

Risk-informed decision making is key—requires information and using our brains for more creative problem-solving.

HRO is a great organizing tool to help instill this mindset.



Blame Culture versus Just Culture



"Why was that person so stupid, unqualified, careless, etc.?
We must *do* something to him/her so *they won't do that again.*"

(The consequences are often seen as unfair and will erode trust and certainly will nix any self-reporting that might lead to early risk identification.)

Yesterday that person was a highly motivated, highly trained, conscientious worker, who made a decision that seemed like a good idea at the time.

(Human Performance Improvement concepts are critical to attain a Just Culture which is a pre-requisite to management excellence.)



Isolationism versus Learning Organizations



Organizations have more in common than not: human, technical, dynamic, hazardous energy sources, toxic substances, training, buildings, maintenance, electrical, etc.

Lifelong learners starting with top leadership.

“Smart men learn from their own experiences, wise men learn from others.” – Capt "Sully" Sullenberger, 2010 INPO CEO Conference

What we need in our operating experience:

- Quality over quantity, including more case studies
- Collaboration to get more involved
- Capture good practices as well as learn from mistakes
- Develop a DOE history library



Risk Factors



We need to think in terms of "risk factors" instead of "leading indicators" because we cannot know cause and effect.

There are likely to be more unwanted outcomes when risk factors are present, we just don't know exactly who or what will be affected.

A short list of examples:

- Weather or natural phenomenon: e.g., snow, ice, cold, winds.
- Workforce disruptions: e.g., pay freezes, layoffs, ARRA, labor dissatisfaction.
- Leadership turmoil: e.g., contract transitions, top level leadership retirements.
- Work activity changes: e.g., type or scope of work; procedures or processes; project phases.
- Schedule or financial pressures: e.g., meeting major project milestones, year end financials.
- Under resourcing: e.g., increasing deferred maintenance, declining percentage of people trained, shortage of key personnel.



Learning and Collaboration Initiatives



Wikis and Blogs:

Operating Experience Wiki <http://operatingexperience.doe-hss.wikispaces.net/>
Operating Experience, Highly Reliable Performance, Video of the Week Archive,
External OE including BP Deepwater Horizon, Electrical Safety, S/CI, Vehicle
Safety and more...

Analytics: Final ORPS, CAIRS, Nuclear Safety Index, and others coming soon

Text Search: A “super-search” capability covering many operating experience collections

Hub: A single landing page that integrates all these information sources

A new *Feedback and Improvement Awards* initiative to highlight good practices



“A delay is better than a disaster”

Fortune cookie saying carried by
Capt “Sully” Sullenberger



Back Up Slides



Management Model Drives Performance



Compliance Model	Excellence Model
Mission performance is a <i>trade off</i> with safety, environment, sustainability, health, QA, etc.	Mission performance is <i>enabled by (and highly correlated with)</i> safety, sustainability, etc.
<i>Piecemeal risk avoidance</i> <i>Prescriptive standards</i> <i>Event focused fixes</i>	<i>Portfolio risk management</i> <i>Risk-informed standards</i> <i>Systemic improvements</i>
“We are <i>different...</i> ”	“We can and should <i>learn</i> from ourselves & others”
Focus on human failures	Focus on organizational failures
Find <i>poor performance...</i> and <i>punish it</i>	Encourage feedback and measure <i>desired behaviors, leading and process indicators</i>
Adverse consequences force reactive assessments	Continuous improvement through proactive assessments

Encourage Excellence – Scrutinize Compliance



Safety Online: **ORNL Breaks Safety Record**



UT-Battelle announced recently that Oak Ridge National Laboratory's approximately 5,000 employees and subcontractors recently passed a historic safety milestone by working 4 million hours without a serious injury. The new record of safe work performance, which began in September 2010, surpasses a previous record of 3.3 million hours in November 2008. The safety accomplishment follows DOE's December announcement that ORNL achieved a performance evaluation of A- in sustaining excellence and enhancing effectiveness of integrated safety, health and environmental protection. ORNL has focused a comprehensive safety program on preventing injuries that result in missed work or job restrictions. Joe Herndon, director of Environment, Safety, Health and Quality, observed that the laboratory has raised awareness of safe practices through a combination of training seminars, regular lab-wide employee communication, videos and site evaluations. As a result, the laboratory has seen a decrease in the annual number of serious injury cases from 71 in 2000 to 16 in 2010. To date, the laboratory has recorded no serious injuries in Fiscal Year 2011. "In a large laboratory with 15 research areas and multiple ongoing large construction projects, we are challenged every day with a work environment that changes rapidly," Herndon said. "Our staff and subcontractors have exhibited a remarkable awareness of and commitment to not only their own safety, but the safety of those around them." ORNL Director Thom Mason noted that UT-Battelle has made impressive strides in establishing its culture of safety since taking over laboratory operations in 2000. "The new record illustrates the degree to which staff and subcontractors have embraced the importance of working safely and incorporating safe practices in performing their jobs," Mason said. ORNL is managed by UT-Battelle for the Department of Energy's Office of Science.

How did their mission performance measure fare over this time?



Value of Safety Management Systems



“Properly understood and implemented, [SMS] becomes a part of the organizational culture, the way people do their jobs,” says Mike Doiron, director of SMS programs at the Southern California Safety Institute.

As SMS gains traction, however, the industry is finding that the program does little for organizations without a strong safety culture. Engagement of front-line workers is a cornerstone of any SMS program, but simply meeting the administrative requirements of the program won’t affect the kind of deep, fundamental changes many organizations must make to engage their technicians. In other words, just because a company has created the program doesn’t automatically mean workers will start talking. Leaders must first lay the groundwork for an open, non-punitive, responsive communication environment.

“One of the building blocks of SMS is a just culture,” says Doiron. “A just culture recognizes that we are all human and that humans make mistakes. If people aren’t treated fairly after an error, they’ll remember that.” And not only will they remember, they’ll tell their co-workers, who also will remember and clam up the next time something goes wrong. This closing off of communication is viral. It spreads quickly and decays safety efforts.

That’s one reason a “just culture,” so simple in theory, proves much more difficult in practice. Although it’s difficult to quantify justness, research on human factors in ground handling conducted in April 2010 by the Air Transport Safety Institute of the National Aerospace Laboratory NLR provides a glimpse into how far the industry has to go in this crucial area. The research investigated safety culture and human factors at seven ground service providers (GSP) in the Netherlands with the goal of understanding the causal factors which led to human errors. For all but one GSP, the characteristic “justness,” one of six safety culture characteristics identified by the study, “provides the lowest rating,” concluded the researchers. “Apparently, the development and maintenance of a just culture is a point of attention for most GSPs.”