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# Reverse Pre-Job Briefs

## *Getting Workers Engaged During Pre-Job Briefings*

*Achieving Excellence in Facilities Maintenance and Sustainability*

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## Brief History

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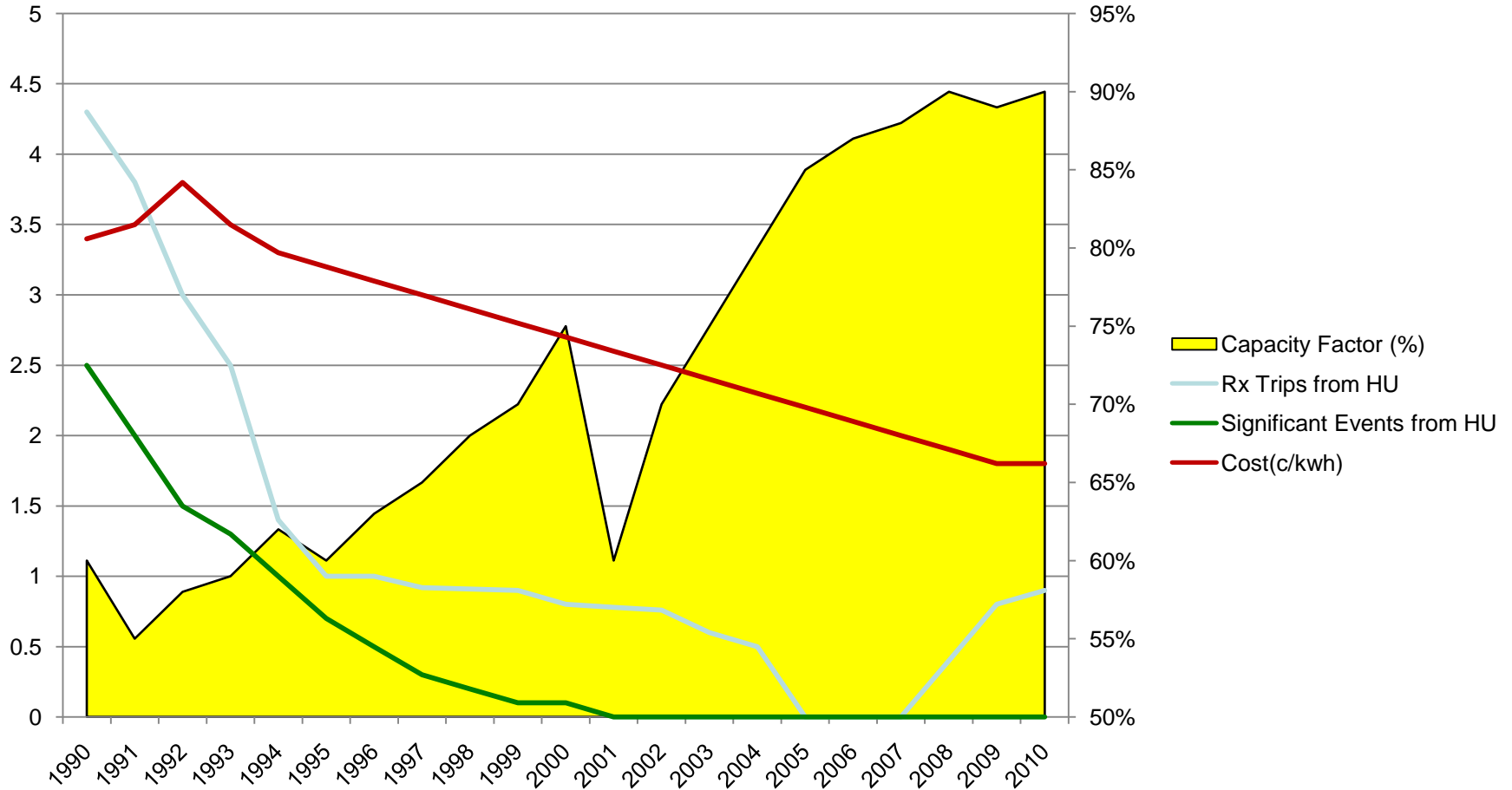
- Commercial nuclear power recognized shortfalls in first line supervisor (FLS) performance as driving human error.
- Circa 1999, with assistance from the Institute of Nuclear Power Operations (INPO), most nuclear plants initiated FLS Academies.
- These off site academies ran between 2 and 14 weeks.
- Integral to these academies was human performance that included human performance simulators, performance demonstrations with managers acting craft roles, oral boards and written examinations.
- FLS human performance focused on pre-job briefs
- Reverse pre-job briefs have become the normal method for operations, maintenance, chemistry and radiological controls.

# Top 10 Nuclear Power First Line Supervisor Skills

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1. Standards Reinforcement
2. Accountability
3. Field Surveillance
4. Review & Verification
- 5. Pre-Job Briefing**
6. Complacency Mitigation
7. Problem Solving
8. Command & Control
9. Communication & Coordination
10. Crew Turnover

# Results of HPI Initiatives



# Nuclear Regulatory Commission Evaluation Criteria

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Were the following issues discussed (check all that apply)?

- risk insights and/or nuclear safety considerations
- defense in depth
- job site conditions that could impact human performance and means to mitigate their potential effects
- contingencies for mitigating the effects of mistakes and/or possible worst-case scenarios
- procedure usage requirements
- other work activities that have the potential to interact with this one
- conditions under which work would be stopped for safety reasons
- communication requirements
- applicable lessons learned from internal or external operating experience

# Common Pitfalls of Pre-Job Briefings (145 Events Involving a Poor Pre-Job Brief)

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## Failure to:

- Understand the limitations or conditions of the work – 38%
- Understand potential hazards – 24%
- Understand the "big picture" or the scope of the work – 13%
- Understand areas that could induce human errors – 14%
- Understand the roles and responsibilities of all involved – 11%

## Pre-Job Brief Short Falls

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Experience has shown the following circumstances (in no particular order) have been observed during, or associated with, ineffective pre-job briefings:

- Generalities, rather than specifics, used
- No discussion of error traps, possible consequences, and needed defenses for each critical step
- Error-prevention techniques or other defenses not adapted or tailored to specific demands of the task
- Conducted as a monologue; no active engagement by others
- No planning for the conduct of the pre-job briefing; no time allowed for workers to prepare
- Principal participants not all present for briefing
- Supervisor responsible for conducting multiple pre-job briefings at the same time
- A checklist of several hundred items to cover used during a pre-job briefing
- Conducted in a distracting location

## Reverse Pre-Job Briefs

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- The pre-job briefing sets the tone for the day.
- A great way to keep the workers on edge is to regularly run your pre-job briefings as reverse briefings.
- The approach is to have the supervisor ask questions and facilitate the pre-job brief.
- This approach gets the whole team a lot more engaged in the briefing. It also allows your leaders to observe the workers.
- Are they getting the message instead of focusing on delivering the material?
- A reverse pre-job brief will identify all the potential risks and how the team will combat those risks.

# Typical Pre-Job Brief Content

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- **Summarize the critical steps.**
- **Anticipate errors for each critical step and relevant error precursors.**
- **Foresee probable and worst-case consequences should an error occur during each critical step.**
- **Evaluate controls or consequences at each critical step to prevent, catch, and recover from errors, and to reduce their consequences.**
- **Review previous OE and lessons learned relevant to the specific task and critical steps. Review and understand the clearance scope and points involved.**
  - Is the clearance adequate for the work?
  - Was it verified against the applicable drawings
  - Are there special instructions or precautions outlined in the clearance notes section?

# Know your HPI Tools

<b>Top 10 Error Drivers</b>	<b>Skill-Based Errors</b>	<b>Rule-Based Errors</b>	<b>Knowledge-Based Errors</b>	<b>Human Error Reduction Techniques</b>
<b>Time Pressure</b>	<ol style="list-style-type: none"> <li>1. Rushed</li> <li>2. Multiple tasks</li> <li>3. Slips/lapses</li> </ol>	<ol style="list-style-type: none"> <li>1. Rule non-compliance</li> <li>2. Poor QV&amp;V</li> </ol>	<ol style="list-style-type: none"> <li>1. Don't consider all options</li> <li>2. Tunnel vision</li> <li>3. Lack of networking</li> <li>4. Poor QV&amp;V</li> </ol>	<ol style="list-style-type: none"> <li>1. STAR (SB)</li> <li>2. Procedure Adherence (RB)</li> <li>3. QV&amp;V (RB)</li> <li>4. Peer-Checks (KB)</li> </ol>
<b>Distraactive Environment</b>	<ol style="list-style-type: none"> <li>1. Forget as-left conditions</li> <li>2. Forget to return to task</li> <li>3. Slips/lapses</li> </ol>	<ol style="list-style-type: none"> <li>1. Poor concentration</li> </ol>	<ol style="list-style-type: none"> <li>1. Poor concentration</li> </ol>	<ol style="list-style-type: none"> <li>1. STAR (SB)</li> <li>2. Task Assignment</li> <li>3. Procedure Adherence</li> <li>4. QV&amp;V (RB)</li> </ol>
<b>High Work Load</b>	<ol style="list-style-type: none"> <li>1. Distractions</li> <li>2. Time pressure</li> <li>3. Stress</li> </ol>	<ol style="list-style-type: none"> <li>1. Rule non-compliance</li> <li>2. Poor QV&amp;V</li> </ol>	<ol style="list-style-type: none"> <li>1. Don't consider all options</li> <li>2. Tunnel vision</li> <li>3. Lack of networking</li> </ol>	<ol style="list-style-type: none"> <li>1. STAR (SB)</li> <li>2. 3 Point Communication</li> <li>3. Task Assignment</li> <li>4. Pre-Job Brief/Field Observation</li> </ol>

# Know your HPI Tools

<i>Top 10 Error Drivers</i>	<i>Skill-Based Errors</i>	<i>Rule-Based Errors</i>	<i>Knowledge-Based Errors</i>	<i>Human Error Reduction Techniques</i>
<b>First-Time Evolution</b>			1. Causes knowledge based errors	1. QV&V 2. Procedure Adherence 3. STOP When Unsure
<b>First day back after days off</b>	1. Low alertness	1. Poor Concentration	1. Poor Concentration	1. STAR 2. Task Assignment 3. Field Observation
<b>First ½ hour after meal or wake-up (Diet/Sleep)</b>	1. Low alertness	1. Poor Concentration	1. Poor Concentration	1. STAR/QV&V 2. Task Assignment 3. Field Observation
<b>Vague or Incorrect Guidance</b>		1. Incorrect rule 2. Rule misapplication	1. Incorrect Information 2. Wrong assumption	1. QV&V 2. 3 Point Communication 3. STOP When Unsure

# Know your HPI Tools

<b>Top 10 Error Drivers</b>	<b>Skill-Based Errors</b>	<b>Rule-Based Errors</b>	<b>Knowledge-Based Errors</b>	<b>Human Error Reduction Techniques</b>
<b>Over-Confidence</b>	1. Inattention to detail	1. Rule non-compliance	1. Tunnel vision	1. STAR/QV&V 2. STOP When Unsure 3. Pre-Job Brief 4. Field Observation
<b>Imprecise Communication</b>		1. Incorrect rule 2. Rule misapplication	1. Incorrect Information 2. Wrong assumption	1. QV&V 2. 3 Point Communication 3. Clear Accountability 4. Pre-Job Brief 5. Field Observation
<b>Stress</b>	1. Inattention to detail 2. Preoccupation 3. Slips/lapses	1. Rule non-compliance 2. Poor QV&V	1. Tunnel vision 2. Poor QV&V 3. Poor concentration	1. STAR 2. QV&V 3. Procedure Adherence 4. Task Assignment 5. Field Observation

# Final Question to Ask at the Pre-Job

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- **What is the WORST That Can Happen?**
- **What DEFENSES are in place?**
  - ***Positive Engagement***
    - A technique used to ensure that each individual participating in the PJB was mentally engaged during the delivery.

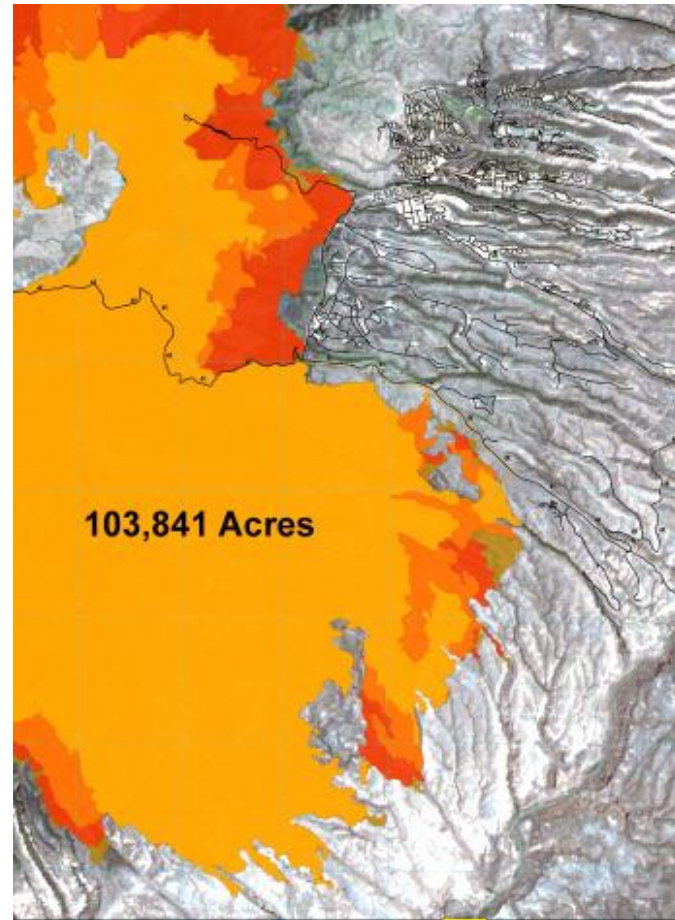
## Pre-Job Brief Exercises

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Here's the interactive part. Break up into groups based on your background. I've got 3 work orders to choose from:

- Transmitter Calibration
- Pump Repair
- HVAC Roof Unit Repair

# End of Presentation – Fire Pictures if Time Permits



UNCLASSIFIED

## End of Presentation – Fire Pictures if Time Permits

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### Lessons learned (and to be learned)

We learned a great deal from the Cerro Grande fire, as a community and as a Lab.

After 2000 Cerro Grande fire, LANL received a great deal of funding from the federal government for recovery and improvement efforts:

- We built a state-of-the-art EOC, allowing us to remain onsite and manage operations around the clock during Las Conchas.
- We received \$24 million for firefighting equipment. It was money well spent and created a ripple effect when some of the equipment was donated to surrounding communities—communities that helped us fight Las Conchas.
- We removed incredible amounts of fuel and learned what a healthy forest should look like. We built additional fire roads and 186 miles of fuel breaks.
- Our flood mitigation efforts after Cerro Grande are still in place today and will help us greatly as we recover from Las Conchas.