



Idaho National Laboratory

# Getting Event Investigations Right:

*Understanding Behaviors and  
Accountability*

**Keven Butler and Oren Hester**  
**Idaho National Laboratory**

# Idaho National Laboratory Vision

Foster education, research, industry, government and international collaborations to produce the needed investment, programs and expertise



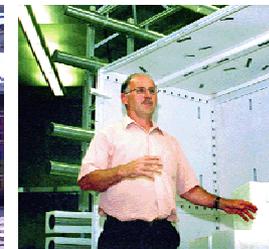
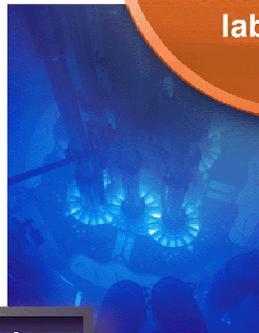
Become the preeminent internationally-recognized nuclear energy RD&D laboratory



Become a leading clean energy RD&D laboratory and a regional resource



Develop world-class nuclear energy capability



Become a major center for national and homeland security technology RD&D

*The U.S. National Nuclear Laboratory with Multi-program Capabilities*

# Historical Cause Analysis at the INL

Dr. Nertney, SSDC, MORT  
based Root Cause. INL  
considered best in  
class within DOE.



## Continuous improvement

Introduce HPI principals  
into the Cause Analysis  
Process

- HPI principals
- Inside the tunnel



Center for  
Human Performance

## New Expectations



1980

2000

2007

2008

Timeline (Years)

# Terminology

- **Human Component:** The part of an event that is described by and attributed to undesired behaviors and accountability. Why undesired behaviors occur + personal accountability.
- **Latent Organizational Weakness (LOW):** Undetected deficiencies in processes or values that create workplace conditions that either provoke error or degrade the integrity of defenses.

# Challenge to Improve

**We do not consistently identify *how* and *why* human behaviors contribute to an accident, injury or near miss.**

**This lack of insight/understanding makes it difficult for the organization to learn and prevent a similar injury or event from occurring.**

# Old Paradigms vs. Expectations

Element	Old (2000-2007)	New (2008-Present)
Ownership	Analyst conducted investigation independent of Line Management	Line Management owns the investigation and uses the analyst as a resource
Timeliness	2-4 months	1-3 weeks
Human component	Latent Organizational Weakness (LOW) are used to explain the cause of the human component	Gain understanding of the interrelationship between LOW and the human component
Corrective actions	Targeted conditions and LOW	Target conditions, the cause of LOW, and holds personnel accountable

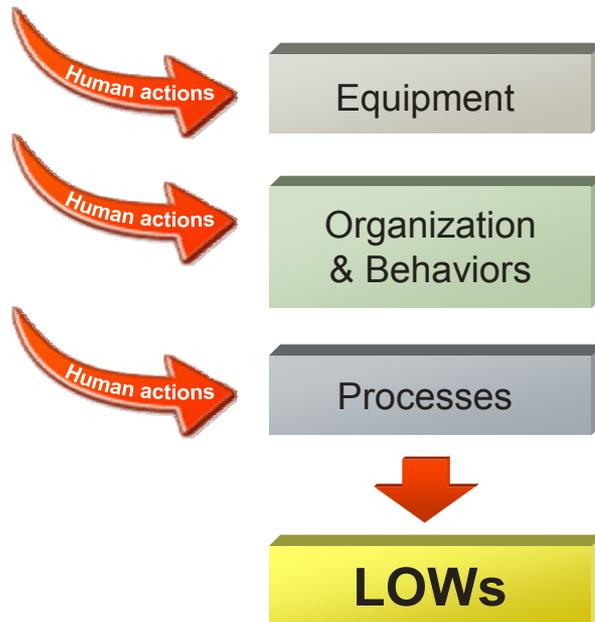
# Untapped Learning: If You Look Deeper Every LOW has a Human Component

- Person not trained and qualified (T&Q) – active error
- Adequate T&Q program not in place - LOW

Most organizations fix these two conditions and they are done. However, they are only part of the puzzle.

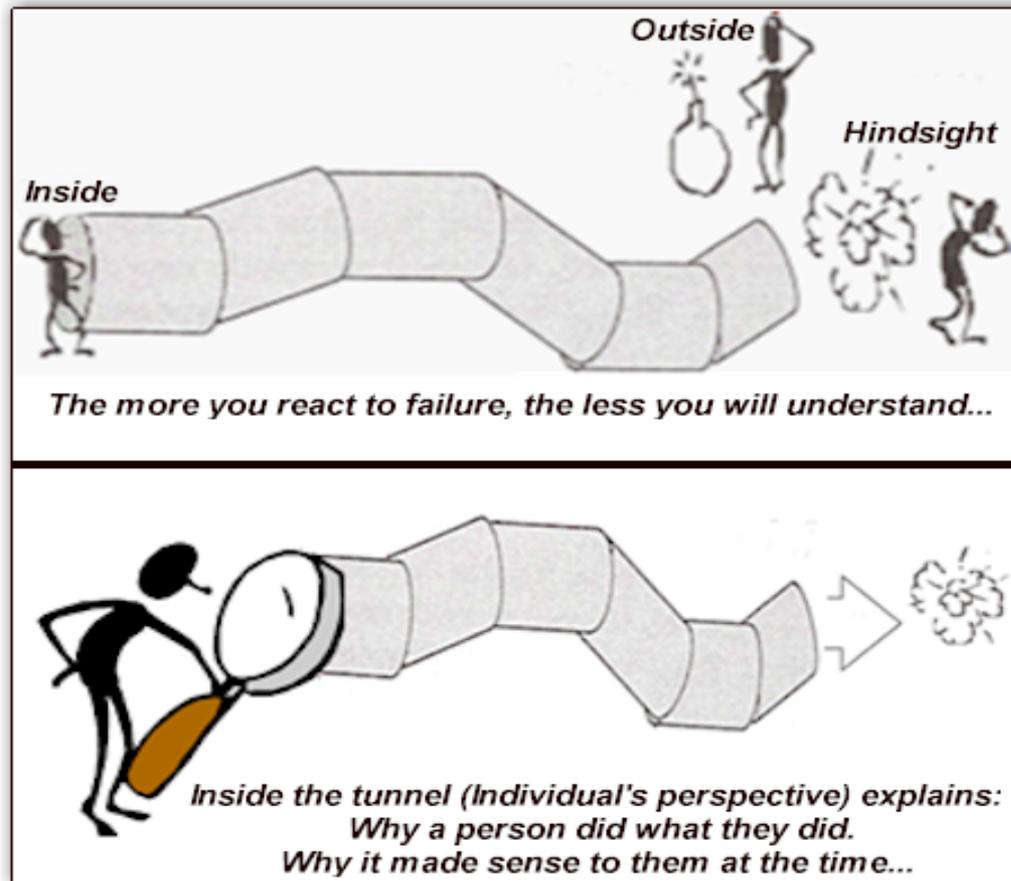
*Does the organization understand Who and Why they didn't implement an adequate T&Q program? In doing so, you achieve a richer level of learning and a more effective set of corrective actions.*

# Understand how LOWs and the Human Component are Interrelated



- **A LOW does not dismiss accountability**
- **LOWs are the product of a number of factors including human actions/in-actions**
- **Behaviors that influenced LOWs need to be understood**
- **How R2s contributed to LOWs needs to be understood**

# Good Leadership Behaviors Enable us to Understand Context and Outcomes



# Accountability Is Key to Understanding Behaviors

- The quality or state of being accountable; especially: an obligation or willingness to accept responsibility or to account for one's actions.
- Appropriate and fair consequences (positive and negative) for an outcome.
- Responsibility + Requisite Authority (Dekker)

**Accountability is not punishment**

# **ACCOUNTABILITY: Employee Safety Team Feedback**

- **People want it, however there is fear in the workplace.**
- **People don't realize when they are not taking ownership/accountability when talking about things they perceive to be totally outside their control.**
- **Need to reinforce that accountability is 24-7 and applies to all activities, not only safety and events.**

# What Happened?

## First Effort to Meet New Expectations

- **Report was issued in 6 weeks (too long to get the report issued).**
- **Senior leadership expectations were not met: accountability was not explained, behaviors attributed to LOWs, suggested corrective actions were too generic .**
- **Line management sent back to address, “Why the LOWs existed?” and “Who was responsible?”**
- **Developed a “Cause Analysis Behaviors Table” to help answer these questions.**

# Cause Analysis Behaviors Table

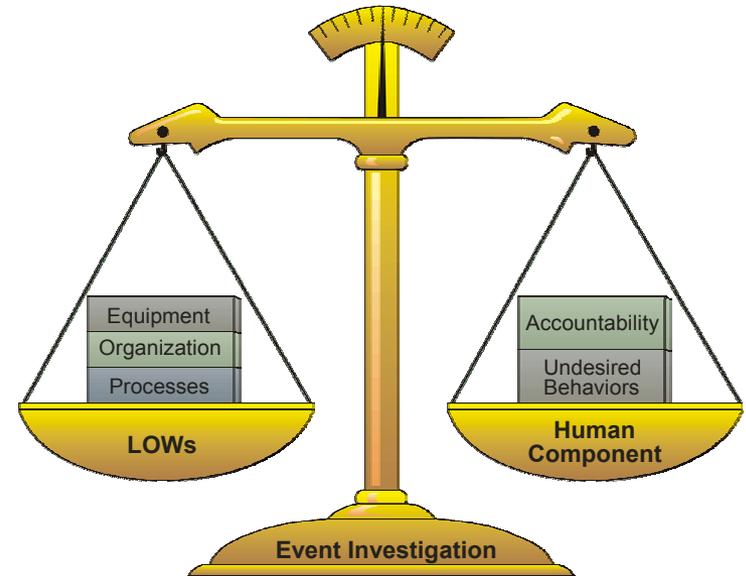
<b>LOW/Less Than Adequate Barrier</b>	<b>Who was Responsible</b>	<b>Expected Behavior</b>	<b>Actual Behavior</b>	<b>Why Did the Behavior Make Sense</b>	<b>Planned Corrective Actions</b>

# What did we Learn

- **Learning curve is steep**
- **Time expectations are not reasonable with our current amount of experience**
- **Slipped back into our comfortable “Strong Rule” (Line Management expecting the Cause Analyst to be responsible for the investigation)**
- **Tendency to avoid accountability, prefer to attribute to “Programs” or “Processes” (non-personal)**
- **“Cause Analysis Behaviors Table” helped us to define and understand the interrelationship of LOWs and the human component**
- **Engaging Line Management is vital to this process**

# How to Achieve the Desired Outcomes

- **Must have a Senior leadership Champion (INL CEO John Grossenbacher)**
- **Educate and Train Leadership and Cause Analysts**
- **Ongoing sharing of lessons learned with leaders and analysts on how to implement the process**



# How to Achieve the Desired Outcomes

- **Establish Line Management ownership**
- **Explore barriers to accountability and establish a common understanding of what accountability means**
- **Institutionalize a Cause Analysis Behaviors Table (or equivalent)**

