“It all started with a one-inch wide band of fire that crept across the fireline into fresh grass...”
Cerro Grande

- May 4 2000 8pm firefighters ignite planned burn (300 acres) in the Bandelier National Monument near Santa Fe, New Mexico
- At 12 midnight 14 firefighters sent down the mountain to get some sleep, despite a “surprisingly active fire”
- At 3am burn boss calls dispatcher to ask for fresh crew and hotshots at 7am--dispatcher won’t approve until the supervisor comes in at 7am the next morning
- At 6am, an expert observer returns to the fire and is anxious: fire moving faster than expected, no fresh resources
CERRO GRANDE (CONTINUED)

- At 6:00am burn boss calls dispatch again (no answer) and then calls Monument superintendent
- At 7:30am heated negotiations between burn boss, dispatch and Monument personnel re: who will pay for requested resources; gets promises
- At 11am the crew promised for 9am arrives; helicopter arrives at 10:30 am without a water bucket
- At 1pm wildland fire declared (has to be extinguished); 2 days later it explodes
On May 19, over two weeks later, the fire finally was stopped.

$1 billion damage includes:
- 48,000 acres burned
- 18,000 people evacuated
- 235 homes burned to the ground
- 39 laboratory building destroyed at Los Alamos
FINDINGS

1. Dynamism (expected “a piece of cake”)
2. Silos
3. Heedless interrelations
4. Overlooked small failures
5. Simplified the task at hand
6. Not attentive to demands on frontline
7. No capability to bounce back
8. Valued authority over expertise
Vulnerable System
Things that have never happened before, happen all the time.
STARTING ASSUMPTIONS

- The unexpected is everywhere.
- Some organizations perform reliably no matter what surprises occur.
- We can all get better at leading and managing in volatile, uncertain, complex, ambiguous (VUCA) contexts if we pay more attention to those that have no choice but to do it well.
What is High Reliability and What Are HROs?
HIGH RELIABILITY ORGANIZATIONS (HROs)

A subset of hazardous organizations that:

• have “...operated nearly error-free for very long periods of time....” (Karlene Roberts, 1990, pp. 101-102);

• recognize that “safety can never be established ex ante...so they are committed to safety at the highest level...and adopt a special approach to its pursuit” (Schulman, 2006, pp. ii39).
HRO Characteristics

- Operate in unforgiving social and political environments
- Use complex processes to manage complex technologies—have potential for surprises and adverse consequences
- Have limited opportunities for learning through experimentation
- Have widespread accountability with sanctions for substandard performance
High Reliability...
WHY USE HROs AS A TEMPLATE?

- HROs have mastered ways to perform well in uncertain, unknowable environments.
- HRO operational insights can inform the practices of all organizations.
- Pressures for “reliability and quality” are building for all organizations (e.g., operational, reputational, legal).
- Uncertainty is increasing for all organizations.
How Do You Achieve Reliable, Safe Performance Repeatedly?
Two Basic Logics

Anticipation/Prevention

Containment/Resilience
SOPs, Plans, Guidelines, Checklists, etc.
Anticipation Has Drawbacks
HROS RECOGNIZE THAT PERFECTION IS ELUSIVE...

“Human fallibility is like gravity, weather, and terrain--just another foreseeable hazard.”

Aaron Wildavsky, 1991
“Life is a series of interruptions and recoveries.”

John Dewey, 1922
Two Basic Logics

Anticipation/Prevention

Containment/Resilience
Resilience

The only realistic goal for safe and reliable performance in complex organizations is resilience - to develop a maximum capability to catch, correct, and learn from surprises as they arise - to develop a kind of intrinsic resistance to operational hazards.

(Adapted from Carthey, de Leval, Reason, 2001)
RESILIENCE: A CORNERSTONE OF SAFETY AND RELIABILITY

Have to make problems/mishaps/mistakes visible so that people can correct them before harm is caused.

Design systems so that people can:
- anticipate and prevent breakdowns,
- catch problems in the making,
- correct them before they grow bigger, AND
- deal with consequences after they become manifest.
How Do HROs Do It?
They Assume

1. Safety does not reside in a single person, device, or department, but emerges from the interactions of components of a system.
2. Even with wide safety margins, detailed operating procedures, missteps, missing resources, miscommunications and mistakes have to be found and put right before they turn into a tragic flaw.
3. The earlier you try to catch problems, the more options you have to resolve them; but the earlier you try to catch them, the harder they are to spot.
They Organize Differently

- They don’t just value reliability/safety per se, they **Hate** mis-specifying (details), mis-identifying (categories), and misunderstanding (meanings) things (they avoid the arrogance of optimism).
- They organize so that people are more likely to become alert and aware -- and they continuously build people’s capacities so that they can act on what they see.
- We call that “mindful organizing.”
Pay Attention in a Different Way
PAY ATTENTION IN A DIFFERENT WAY

- You **STOP** concentrating on those things that confirm your hunches, are pleasant, feel certain, seem factual, are explicit, and that others agree on!

- You **START** concentrating on things that disconfirm, are unpleasant, feel uncertain, seem possible, are implicit, and are contested!
MINDFULNESS VS MINDLESSNESS

- Mindfulness is about the quality of attention— an orientation toward continually refining and updating expectations, assumptions, beliefs.
- Mindlessness is about following old recipes, acting with rigidity, operating on automatic pilot, and mislabeling unfamiliar new contexts with familiar old ones.
Mindful Organizing Requires:

Respectful interaction

Heedful interrelations

Mindful infrastructure
MINDFUL ORGANIZING REQUIRES BUILDING A CULTURE WHERE...

1. There is deep respect and trust for one another.
2. There is clear understanding of what the goals are, how one’s job fits with other people’s jobs to achieve those goals.
3. There exist ongoing practices and routines aimed at
   - Tracking small failures
   - Resisting oversimplification
   - Being sensitive to what is happening right now
   - Developing capabilities for resilience
   - Taking advantage of shifting locations of expertise.
Foster: Respectful Interaction

To encourage people to surface information that conflicts with the majority view build norms of:

- trust,
- trustworthiness, and
- self respect.
FOSTER: HEEDFUL INTERRELATING

Heedful interrelating means that people:
1. Understand the big picture goal,
2. Understand how their individual job fits with other people’s jobs to achieve this big picture goal, and
3. Do their work taking both these things into account.

Heedless interrelating is when an individual simply does her/his job ignoring what goes on around her/him.
ESTABLISH: MINDFUL INFRASTRUCTURE (E.G., ROUTINES AND PRACTICES)

1. **Attend to failures**: Treat any and all failures (e.g. surprises) as a window on the health of the system.

2. **Avoid simplifying interpretations**: Socialize people to make fewer assumptions and to notice more.

3. **Attend to operations**: Develop an integrated big picture of ongoing operations.

4. **Cultivate resilience**: Anticipate AND develop the capacity to cope with surprises in the moment.

5. **Migrate decisions to experts**: Venerate expertise and experience over rank (create fluid decision structures).
When an organization is mindful its members are...

1. Spending time identifying what can go wrong, what has gone wrong, and talking about mistakes and how to learn from them;
2. Pooling diverse perspectives to get a good picture of the situations they face;
3. Discussing alternatives as to how to go about everyday activities and problems;
4. Continually developing people’s skills and abilities;
5. Taking advantage of the unique skills of one’s colleagues even if the person is of lower status in the organization.
**Some Implications**

- Mindful organizing practices are associated with more reliable/safer performance.
- These practices contribute to a culture of safety”.
- Mindful practices may increase the “quality of attention” so problems are caught early.
- Empirical research supports these ideas.
What Are The Implications For You?
WHAT MIGHT YOU DO NEXT?

- Be realistic: There is no silver bullet!
- Develop structures before chaos arrives--attend to the social/relational infrastructure.
- Develop practices and routines that are consistent with the principles.
- Make use of available resources and current practices.
Enable, Enact, and Elaborate A Culture of Safety/Reliability

1. Direct attention to safety (safety rounds).
2. Create contexts where practitioners feel safe to speak up and act in ways that improve safety (actively see out bad news).
3. Highlight threats to safety (failure/near miss reporting, etc).
4. Mobilize resources to resolve threats.
5. Comprehensively represent safety outcomes.
6. Use feedback to modify practices and processes and diffuse them.
1. Attend to vulnerability.
   - Avoid “arrogance of optimism”
   - Mistakes that must not occur
2. Seek out small failures and make sense of them.
USE CHURCHILL’S AAR

- Why didn’t I know?
- Why didn’t my advisors know?
- Why wasn’t I told?
- Why didn’t I ask?
3. Complicate your thinking and question your assumptions.
4. Create requisite variety: seek diverse views and make it safe for people to speak up.
5. Keep aware of the unfolding situation.

- Reward contact with the frontline
- Use communication protocols
Use STICC to Communicate

Situation = Here’s what I think we face.

Task = Here’s what I think we should do.

Intent = Here’s why I think this.

Concern = Here’s what I think we should keep our eye on.

Calibrate = Now talk to me.
6. Develop the skills to cope and bounce back.
7. Identify experts before you need them.
TWO FINAL CAVEATS

 Hubris is the enemy!
  • The continuing absence of adverse events does not mean that nothing is being done to create this nonoccurrence. Chronic wariness is necessary.

 Safety and reliability are perishable!
  • Make continual reinvestments in improving technical systems, procedures, reporting processes, and other practices that encourage people to be attentive or else performance standards will degrade.
A well-designed organization is not a stable solution to achieve, but a developmental process to keep active.