The First Basic Teaching Guide

for Introducing High Reliability Organizing

to the Wildland Fire Community:

**From the Field to
Line Officers**

March 2008

Developing a curriculum on high reliability designed to help build safe and effective wildland fire programs.

"The five principles of High Reliability Organizing are not a prescription for how you do your work. They give you a frame of mind for how you apply these principles to your work."

Mike DeGrosky, Organizer
Facilitating High Reliability Organizing (HRO)
in Wildland Fire Workshop

"Our ability to make better sense of our world—that's what this High Reliability Organizing is really all about."

Jim Saveland, Resource Staff
Facilitating High Reliability Organizing (HRO)
in Wildland Fire Workshop

Contents

Another Available Resource

The DVD presentation *HRO Teaching Tips from the Advanced HRO Seminar*—that documents this special February 2007 seminar held in Phoenix, AZ—is now available from the Wildland Fire Lessons Learned Center. For more information, visit <http://www.wildfirelessons.net>.

*"HRO is really the glue or foundation for how we operate—
and should strive to operate—in wildland fire management. It
is a way to think logically to better prepare for the unexpected
events. It is a particularly good method for making sense—and
even foreseeing—the unexpected."*

**Paula Nasiatka, Manager
Wildland Fire Lessons Learned Center,
Speaking at the May 2007 *Facilitating HRO
in Wildland Fire* workshop**

I Purpose and Intent of This Teaching Guide

This special guide for teaching and facilitating High Reliability Organizing (HRO) reflects the presentations that were made at the three-day May 2007 *Facilitating HRO in Wildland Fire* workshop.

By using and following this guide, the HRO teacher will understand the fundamentals of HRO and will be better prepared to facilitate these principles to others.

This guide is designed to:

1. Prepare people to spread HRO principles throughout the wildland fire community,

2. Reinforce HRO principles with examples from both within and outside the wildland fire arena,

3. Explore examples of integrating HRO into organizations,

4. Help people understand the history and genesis of HRO, and

5. Prepare people to teach others about the fundamentals of HRO.

The Five Principles of High Reliability Organizing (HRO)

1. A Preoccupation with Failure.

HROs are preoccupied with all failures, especially small ones. Small things that go wrong are often early warning signals of deepening trouble and give insight into the health of the whole system. But, we have a tendency to ignore or overlook our failures (which suggest we are not competent) and focus on our successes (which suggest we are competent).

2. A Reluctance to Simplify.

HROs restrain their temptation to simplify through diverse checks and balances, adversarial reviews, and the cultivation of multiple perspectives.

3. A Sensitivity to Operations.

HROs make strong responses to weak signals (indications that something might be amiss). Everyone values organizing to maintain situational awareness.

4. A Commitment to Resilience.

HROs pay close attention to their capability to improvise and act—without knowing in advance what will happen.

5. A Deference to Expertise.

HROs shift decisions away from formal authority toward expertise and experience. Decision-making migrates to experts at all levels of the hierarchy during high tempo times.

A method for teaching the HRO principle "Sensitivity to Operations" is demonstrated through a special sand table exercise at the *Facilitating HRO in Wildland Fire Workshop in Nebraska City, Nebraska.*

Dominic Kovacevic

II A Generic Agenda for Half-Day Workshop on High Reliability Organizing (HRO)

Setting the Stage

Why is HRO/Mindfulness important to you?

- Less room for decision-error under current climate conditions.
- It is extremely easy for even the most experienced fire organizations to go "mindless."
- Safety degrades—it constantly needs to be replenished.
- Trial and error is a poor way to learn.
- It is to move from being a novice practitioner of safety to becoming an expert.

What is different about HRO/Mindfulness?

- The concept of mindfulness is a more nuanced approach to thinking out one's situational awareness.
- Mindfulness creates more "novel distinctions."
- Mindfulness catches more "weak signals" earlier.
- Mindfulness teaches the importance of containing the weak signals through deference to expertise and resilience.

HRO Audits

- Use HRO "audits" from Weick and Sutcliffe's book *Managing the Unexpected* to evaluate the climate of people's fire organizations.

The Five Tenets of HRO/Mindfulness

1. Preoccupation with failure.
2. Sensitivity to operations (situational awareness).
3. Reluctance to simplify.
4. Deference to expertise.
5. Resilience.

Tips on Using Mindfulness

The principles of mindfulness can be observed and discussed from recent documented wildfires, prescribed fires, and wildland fire use events—or, from non-fire examples.

Examples of fire case studies that can be viewed through the lens of mindfulness (there are hundreds of case studies to draw from):

- Nuttal Fire Sand table exercise,
- I-90 Fire shelter deployment,
- Little Venus WFU entrapment,
- New York Peak burnover
- Non-fire examples (The New York Trade Center Attack, Texas City oil refinery, Columbia Space Shuttle Search and Rescue Incident, and others.)

Closing

Open dialogue/conversation about:

- Your perceptions of mindfulness.
- How can you begin applying mindfulness "right now" in your workplace?
- HRO resources available at the Wildland Fire Lessons Learned Center.

III Teaching Guide From the Facilitating HRO in Wildland Fire Workshop

1. Establishing Context

A. Objectives

Upon completion of this unit, you will:

1) Explain how HRO relates to other human factors initiatives in the wildland fire community including doctrine, leadership, and just culture.

2) Describe how HRO fits into the larger Wildland Fire Lessons Learned Center (LLC) strategy and the wildland fire community's future.

B. Lesson Outline

How HRO Fits into the Bigger Picture

After the third national *Managing the Unexpected in Wildland Fire* workshop, a small interagency group gathered at the Lessons Learned Center last summer to answer the question "Where to Next with HRO?"

More than 300 fire folks had attended these workshops. Critiques, evaluations, and after action reviews (AARs) from both students and faculty indicated that the workshops were very successful and that HRO has a spot within the fire management toolbox.

The meeting's objectives were:

- Should we continue to use the national Managing the Unexpected workshops as the primary method of "teaching" HRO?
- Is it time to change and/or modify approaches to teaching HRO?

- What new approaches to applying HRO to fire management operations are most pertinent at this time?

HRO Mission Statement

This interagency group developed a central "mission" statement that describes, in precise terms, how HRO fits into the overall organizational learning strategy of the Wildland Fire Lessons Learned Center:

> *High reliability organizing is a component of the Wildland Fire Lessons Learned Center's overall organizational learning strategy and is part of an organized effort to build wildland fire programs that are consistently successful in achieving their fire management objectives safety and effectively.*

Goals for Meeting the HRO Mission Statement

The group then built three general goals to work toward in meeting the HRO mission. To receive further input and validate these goals, they were discussed with a larger representation of wildland fire professionals who had also been involved with HRO and the national MTU workshops.

1) Curriculum Development

Development of a curriculum for three workshops and/or courses that include the following:

- An *Advanced HRO Seminar* was held in February 2007 where 25 participants worked intensively with Weick and Sutcliffe in a two day graduate style session. The goal of this seminar was to set the stage for an interagency cadre to discuss in detail the five principles and learn how best to teach and apply the principles to actual work practices.

- A *Facilitating HRO in Wildland Fire* (Train-the-Trainers) workshop where a select group of participants would be taught how to effectively teach HRO principles.

    - This course would be taught by a cadre of master instructors who attended the "Advanced Seminar."
    - Approximately 50 pre-selected students who are highly motivated to continuing the teaching HRO around the nation.
    - This workshop would not only teach the principles of HRO, but would instruct the students in how to teach HRO to others.
    - The workshop would include instruction on how adults learn and various teaching methodologies.

- The people taught in the Train-the-Trainers workshop become leads to put on three geographical area HRO in Wildland Fire workshops each year at various locations throughout the United States.

    - Working with the various Geographic Coordinating Groups across the U. S., develop and implement up to three HRO workshops per year.
    - The workshop design template developed from the in the Advanced HRO Seminar and the Facilitating HRO workshop
    - would initially be used to develop these sessions.
    - These geographic HRO workshops would be developed and coordinated with participation of local GACC.
    - May or may not include a staff ride.

2) Education and Outreach

The purpose of an HRO education and outreach plank is to ensure that stakeholders, both inside and outside fire management, have a thorough knowledge of what HRO is—and how it is aligned with other efforts. It is assumed that after work has been completed in this arena, a consistent message regarding the value of HRO will be delivered to stakeholders that would

not be "competing" with other national initiatives. Rather, HRO will serve as a foundation that glues other fire management initiatives together.

3) Measuring HRO's Effectiveness

There is a critical need to answer fundamental questions about the time, money and effort put into HRO: Is it working and is it meeting the Mission & Goal statement developed at the Wildland Fire Lessons Learned Center?

To fully answer this question, we need to develop a set of metrics for HRO that address the questions:

- Is HRO at a "tipping point" national and/or regionally?
- Is HRO, after the three initial workshops, self-sustaining?
- What does "success" look like for fire management and HRO?

- Has HRO prevented serious tragedies? If it has, how would we know for sure?
- Where are people currently using HRO?

Some of these questions are being addressed in a current research project called "Assessing HRO in Wildland Fire". Kathleen Sutcliffe and Michelle Barton of University of Michigan Business School, in cooperation with Aldo Leopold Wilderness Research Institute and the Boise National Forest, are looking at what level the HRO principles are embedded in wildland fire operating practices.

High Reliability Organizing and Organizational Learning

Recently, the Wildland Fire Lessons Learned Center began its first strategic planning effort. An interagency planning team, along with wildland fire stakeholders from around the country, is helping the LLC develop its mission, vision, and goals and objectives for the next five years. HRO has been consistently discussed as an important component.

In Fall 2007, the new LLC mission statement was finalized:

The Wildland Fire Lessons Learned Center actively promotes a learning culture to enhance and sustain safe and effective work practices in the wildland fire community. The Center provides opportunities and resources to foster collaboration among all fire professionals, facilitates their networks, provides access to state-of-the-art learning tools, and links learning to training.

As you can see from the above mission statement, HRO, leadership, doctrine, and just culture are all represented. All of these focus areas in wildland fire need to be presented and discussed in an integrated, cohesive fashion. Teaching or referring to them as isolated initiatives does little to build or strengthen our learning culture.

Moving Forward

In conclusion, according to the Harvard Business School, there are three building blocks of a learning organization. They are: a supportive learning environment, concrete learning processes and practices, and reinforcing leadership behaviors.

Let me leave you with a quote from *Is Yours a Learning Organization?* by Amy Edmonson, David Garvin and Francesca Gino (2007):

"Organizational learning is therefore likely to be heavily influenced by the behavior of leaders. If leaders prompt dialogue and debate through active questioning and listening, learning is likely to be encouraged. If they signal the importance of spending time on problem identification, knowledge transfer, and reflective post-audits, these activities are likely to flourish. If they behave in ways that acknowledge their own openness and willingness to entertain alternative points of view, options are likely to multiply and diverse alternatives are likely to be voiced. Leadership behavior is thus the vehicle that gives life to supportive learning environments and ensures the effective implementation of critical learning processes."

C. Tips

It is important to stress that HROs are learning organizations—but learning organizations *are not necessarily HROs*. The HRO principles can really serve to be a foundation for bonding fire management initiatives such as doctrine and leadership.

D. Problems

As long as the tie between organizational learning and HRO is discussed, it, generally, will not be necessary to go into all the details of how the wildland fire community got involved in HRO and where to go next with HRO.

E. Resources

David Garvin's book *Learning in Action*: Garvin, D. 2000. Learning in action. Boston, MA: Harvard Business School Press.

Lessons Learned Center Web page on Organizational Learning:
<http://www.wildfirelessons.net/OrgLearning.aspx>

Lessons Learned Center Web page on High Reliability Organizing:
<http://www.wildfirelessons.net/HRO.aspx>

2. Introduction to the Concepts of Mindfulness and Error Resilience

A. Objectives

Upon completion of this unit, you will:

1) Describe the concept of mindfulness in the context of HRO,

2) Explain the concept of error resilience in the context of HRO,

3) Explain the history and genesis of HRO (academic background), and

4) Be able to relate to other human factors concepts including the Human Factors Analysis and Classification System (HFACS)/Swiss Cheese model.

B. Lesson Outline

Just What Does "HRO" Mean?

- High Reliability ORGANIZING

- The five HRO "principles" when taken together, produce organizational mindfulness.

- Weick and Sutcliffe list five "hallmarks" of "mindfulness" seen in organizations that persistently have less than their share of accidents.

High Reliability Organizing

- "Mindfulness" in the Context of HRO
- "Resilience" in the Context of HRO

- History and Genesis of HRO
- Link to Other "Human Factors" Concepts

The Five High Reliability Organizing Principles

- Preoccupation with Failure
- Reluctance to Simplify
- Sensitivity to Operations

- Commitment to Resilience
- Deference to Expertise

Putting HRO in Context: High Reliability Organization Definitions

- A subset of organizations in which errors can be catastrophic to the organization and/or society as a whole that have long histories of nearly error-free operations (Roberts, Rochlin).

- Potentially hazardous organizations with history of excellent operations (Roberts).

- Organizations that exhibit continuous, nearly error-free operation, even in multi-faceted, turbulent, and dangerous task environments (Roberts).

- Potentially hazardous organizations with history of excellent operations (Roberts).

- Organizations that exhibit continuous, nearly error-free operation, even in multi-faceted, turbulent, and dangerous task environments (Roberts).

- Organizations that require nearly error-free operations all the time because otherwise they are capable of experiencing catastrophe (Weick and Roberts).

- Organizations that operate under very trying conditions all the time and yet manage to have fewer than their fair share of accidents (Weick and Sutcliffe).

Continuous Learning

- Principles: Conditions For Learning

- Updates The System/Gets Smarter

- Learning Inseparable From Work

- System Aware Of Itself and Adaptive

What is it About How These People Conduct Their Business That We Admire? What are We Looking for from People?

What Do We See These People (This System) Doing That We Think Produces High Reliability?

Definition of "Just Culture:"

> *An Atmosphere of Trust in Which People are Encouraged, Even Rewarded, for Providing Essential Safety-Related Information—But, in Which They Are Clear About Where the Line Must Be Drawn Between Acceptable and Unacceptable Behavior.*

E. Resources

A Bibliography for Instructors of This Unit

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Pfeiffer, J. (1989). The Secret of Life at the Limits: Cogs Become Big Wheels. *Smithsonian 20*(4), 39 40.

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3. Communication, Advocacy, and Preconditions

A. Objectives

Upon completion of this unit, you will:

1) Explain how the communication, advocacy, and precondition concepts presented relate to HRO in a practical sense,

2) Be prepared to introduce a few practical communication and advocacy tools that will help you teach others about those principles.

B. Lesson Outline – Moving Toward High Reliability is as Easy as 3, 4, 5

To integrate the concepts of High Reliability Organizing, the Learning Organization, and Safety Management into our everyday fire language and practice, we have developed a useful mnemonic; it's called "3, 4, 5." This mnemonic might be a helpful tool for remembering the key concepts and behaviors necessary for attaining high reliability.

It's as easy as 3, 4, 5.

- **3** – Elements important for respectful interaction

- **5** – Practices of an HRO that help create "mindfulness"

- **4** – Aspects of an "Informed" Culture

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3 – Respectful Interaction[1] (Campbell 1990, p39)

Respectful interaction is based on the presence of three elements: trust, honesty, and self-respect.

- **Trust.** Respect the reports of others and be willing to base our beliefs and actions on them.

- **Honesty.** Report honestly so that others may use our observations in coming to valid beliefs.

- **Self-respect.** Respect our own perceptions and beliefs and seek to integrate them with the reports of others without deprecating [devaluing] them or ourselves.

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[1]*Campbell, Donald T. 1990. p 39 In Asch's moral epistemology for socially shared knowledge" In Irwin Rock (Ed). The legacy of Solomon Asch: essays in cognition and social psychology: 39-52. Hillddale, NJ: Erlbaum.*

4 – An Informed Culture[2] (Reason 1997)

An informed culture requires the free exchange of information, which requires a culture that is: 1) Just, 2) Reporting, 3) Able to learn from itself, and 4) Flexible.

1. **Just Culture.** Don't shoot the messenger.

2. **Reporting Culture.** Don't be afraid of being shot.
    - ➢ Are things happening that I did not plan/expect?
    - ➢ Have I let someone know?
    - ➢ Did I learn something that others should know about?

3. **Learning Culture.** Learning is continuous; be a student.
    - ➢ Have I challenged my assumptions and expectations today?
    - ➢ Was I lucky or was I good?

4. **Flexible Culture. Rules don't and can't cover every situation. This is not the same** thing as a "good rule" misapplied or ignored because it is not convenient or you don't agree.

5 – Hallmarks of High Reliability Organizations[3] (Weick and Sutcliffe 2007)

Highly Reliable Organizations spend energy thinking about mindful anticipation and awareness and in mindful containment.

Things happen all the time we've never seen before." (Karl Weick)

'Mindful Awareness and Anticipation' of the Unexpected.
- ▪ *Preoccupation with Failure*
- ▪ *Reluctance to Simplify*
- ▪ *Sensitivity to Operations*

   A few useful tips to increase these HRO practices:

   - ➢ Restate your goals in the form of mistakes that must not occur.
   - ➢ Create/practice mindful moments (remember that mindfulness takes effort)

'Mindful Containment' of the Unexpected.
- ▪ *Commitment to Resilience*
- ▪ *Deference to Expertise*

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[2] Reason, James. 1997. *Managing the Risks of Organizational Accidents.* Burlington, VT: Ashgate Publishing Company.

[3] Weick, Karl E., and Kathleen M. Sutcliffe. 2007. *Managing the Unexpected—Resilient Performance in an age of Uncertainty.* San Francisco, CA: Jossey-Bass.

A few useful tips to increase these HRO practices:

➢ "Begin to contain the event by doing what experience tells you to do, but remain in doubt that you're doing exactly the right thing. When the unexpected deteriorates into a (serious) disruption this result is an outcome that is partly novel and partly routine. You've seen a lot of messes, but you've never seen quite this particular mess. "

➢ Enlarge competencies and response repertoires (e.g. sand table exercises, staff rides, etc)

Resilience takes "deep knowledge."

➢ Accelerate feedback (e.g. After Action Reviews) Systems with slow feedback essentially give up any chance for resilience. Effective resilience requires quick, accurate feedback so that the initial effects of attempted improvisations can be detected quickly and the action altered or abandoned if the effects are making things worse.

"Every day we come home without an accident or injury is a near miss."

Managing the Unexpected Conference participant,

Missoula, MT 2006

All High Reliability Organizations

▪ Know that small things that go wrong are often early warning signals of deepening trouble that provide insight into the health of the whole system.

▪ Treat near misses and errors as information about the health of their systems and try to learn from them.

▪ Understand that if you catch problems before they grow bigger, you have more possible ways to deal with them.

4. Preoccupation with Failure

A. Objectives

Upon completion of this unit, you will:

1) Explain the principle of preoccupation with failure as described by Weick and Sutcliffe;

2) Be able to use the terminology associated with the principle;

3) Have an example for leading a discussion and facilitating a practical exercise and demonstrating the principle—that you may apply, modify, or build upon; and

4) Be able to facilitate others in applying the principle to their work.

B. Lesson Outline – Handout

Audit: Assessing Your Organization's Preoccupation with Failure

How well do the following statements describe your work, unit, department, or organization? For each item, circle the number that best reflects your conclusion: 1 = not at all, 2 = to some extent, 3 = a great deal.

1. We actively look for failures of all sizes and try to understand them.

1   2   3

2. When something unexpected occurs, we always try to figure out why our expectations were not met.

1   2   3

3. We treat near misses as information about the health of our system and try to learn from them.

1   2   3

4. We regard near misses as failures that reveal potential dangers rather than as successes that show our capability to avoid disaster.

1   2   3

5. We often update our procedures after experiencing a near miss.

1   2   3

6. If you make a mistake it is not held against you.

1   2   3

7. People report significant mistakes even if others do not notice that a mistake is made.

1   2   3

8. Managers actively seek out bad news.

1   2   3

9. People feel free to talk to superiors about problems.

1   2   3

10. People are rewarded if they spot potential trouble spots.

1   2   3

Scoring

Add the numbers. If you score lower than 12, you are preoccupied with success and should be actively considering how you can immediately improve your focus on failure.

If you score between 12 and 20, you have a moderate preoccupation with success rather than a fully mindful preoccupation with failure.

Scores higher than 20 suggest a healthy preoccupation with failure and a strong capacity for mindfulness.

This exercise is reprinted here with permission from Karl Weick and Kathleen Sutcliffe, authors of *Managing the Unexpected: Resilient Performance in an Age of Uncertainty – Second Edition.*

[Editor's Note: Similar audit exercises for the four other HRO principles are available in this guide's *Section V HRO Assessment Tools/Audits – What's Your Score?*]

C. Resources

- March 1997 article published in Wildfire magazine *Targets for Firefighting Safety: Lessons from the Challenger Tragedy* by Diane Vaughan.

- *History as Cause*, Chapter Eight of the *Columbia Accident Investigation Board Report.*

- "A Lesson in Weak and Strong Signals" – the helicopter window incident on the 2003 Paradise Two Fire in Sequoia and Kings Canyon National Park.

- Weick, K. & Sutcliffe, K. (2007). *Managing the Unexpected: Resilient Performance in an Age of Uncertainty – Second Edition.* San Francisco. Jossey-Bass.

5. Reluctance to Simplify

A. Objectives

Upon completion of this unit, you will:

1) Explain the principle of "Reluctance to Simplify" as described by Weick and Sutcliffe;

2) Describe what this sounds like and feels like as it operates in the fire community using your own and previously collected examples;

3) Have participated in a discussion about and a facilitation exercise that demonstrates the principle as it applies to the fire community—one that you may apply, modify, or build upon; and

4) Be able to facilitate others in applying the principle to their work.

B. Lesson Outline

As with all of these High Reliability Organizing principles, there is an aspect of intellectual understanding. However, perhaps even more importantly, is a necessary organic/gut understanding. A key difference between what most of us think as gut or "intuitive" for successful HRO needs to be *public* and explicit, rather than non-verbal. This is a learned skill!

The intent of this lesson is to provide some of each.

This is why we chose to start with a video clip. This particular one, which is available for single use on-line or by purchasing the company's CD, illustrates how easy it is for our expectations to skew what it is that we consciously see—or don't see. It immediately grabs people's attention and opens them to what follows. [For more information, see "E. Resources" on next page.]

We follow this non-fire example immediately with a fire example. In this case, we point out how the lines are blurring between different types of fire, yet how different are the tempos, roles, and cultures of prescribed fire, wildland fire use, and suppression. This, itself, could be fruitful ground for discussions about how people might simplify or "complexify" their fire world.

Only then do we introduce Weick and Sutcliffe's description of the principle.

We then bounce back to fire examples, drawing from Weick and Sutcliffe's analysis of Cerro Grande, then bringing in examples from interviews with various members of the fire community. These are intended to provide a sense of the breadth—different aspects—of the

principle, but also ones that reflect more superficial as well as deeper understandings. These are intended as teasers to help the group begin to see examples in their own experiences.

C. Tips

Try to start the discussion/lesson with some short interactive exercise that helps people to see how their expectations radically impact what they pick up about their environment. Bounce back and forth between fire and non-fire examples.

Be reluctant to simplify the concept as you define and describe it. Take time to think about and discuss key words used by Weick and Sutcliffe.

Use examples that you are familiar with—or you think that your audience will be familiar with—to illustrate what this might sound like (or its opposite!) in fire management. Don't worry about being exhaustive. In fact, tease people into beginning to apply these to their own experience. Move quickly to these.

D. Problems

Humans simplify to create a sense of pattern and control in their environment. There is a fine line between successfully being reluctant to simplify and data overload. This is likely to come up (in people's minds at least). So you might want to raise this as a point of discussion.

E. Resources

Researchers at the University of Illinois, Champaign have developed a number of short videos as part of their research into "visual cognition". These demonstrate the difficulty in detecting changes—even rather large intrusions into a scene when attention is focused; as well as small, incremental changes—even when attention is directed to the generic task of change detection. Some of these clips are available for single use, but they are proprietary. The developers/researchers sell DVDs and associated use-licenses. For more information, visit: <http://viscog.com> or <http://viscog.beckman.uiuc.edu/djs_lab>.

6. Sensitivity to Operations

A. Objectives

Upon completion of this unit, you will:

1) Explain the principle of "Sensitivity to Operations" as described by Weick and Sutcliffe;

2) Be able to use the terminology associated with the principle;

3) Have an example for leading a discussion and facilitating a practical exercise and demonstrating the principle—that you may apply, modify, or build upon; and

4) Be able to facilitate others in applying the principle to their work.

B. Lesson Outline

▪ Introduction to Sensitivity to Operations – Show linkage between sensitivity to operations and firefighting definitions of situational awareness, of having the "big picture."

▪ Compare having the "big picture" with other organization's concepts of situational awareness (for example, the U.S. Navy's "having the bubble;" air traffic controllers "having the flick").

▪ Discuss case studies of actual fire situations in which situational awareness broke down (for example, Geraldton Burn in Canada, the New York Fire burnover in Nevada, the Glover Ridge helitorch crash).

▪ End lecture with open discussion revolving around these questions: How do you know you have "situational awareness?" How do you know when you have lost situational awareness? What is your definition of situational awareness?

▪ Students are now asked to apply their knowledge of situational awareness with a sand table exercise.

C. Tips

It is important to be able to distinguish this subtle point: It's not that you have a cognitive map of your situational awareness, but that you are "in control" of your situational awareness.

D. Problems

Because numerous definitions of situational awareness can be found in various firefighting handbooks and guides, it is important to have a discussion in class about what situational awareness means to individual firefighters. Be prepared to deal with various viewpoints over what situational awareness is—or isn't. Because situational awareness isn't a simple "black and white" concept, this might cause some discomfort in class.

E. Resources

Gene Rochlin's book *Trapped In the Net: The Unanticipated Consequences of Computerization* has an excellent chapter on how the U. S. Navy develops situational awareness (their term for it is "the bubble") on aircraft carriers. The Navy's examples of situational awareness are easily carried over to firefighting operations. It is available at <http://press.princeton.edu/books/rochlin/chapter_07.html>.

Sharon Daloz Parks's book *Leadership Can Be Taught* is a good sourcebook for teaching techniques that might help instructors teach the somewhat ambiguous topics of "having the bubble" or the "big picture" or "situational awareness." It is available at <http://www.cambridge leadership.com/publications/pdfs/leadership_can_be_taught.pdf>.

7. Commitment to Resilience

A. Objectives

Upon completion of this unit, you will:

1) Explain the principle of "Commitment to Resilience" as described by Weick and Sutcliffe;

2) Be able to use the terminology associated with the principle;

3) Have an example for leading a discussion and facilitating a practical exercise and demonstrating the principle—that you may apply, modify, or build upon; and

4) Be able to facilitate others in applying the principle to their work.

B. Lesson Outline

Objectives

- Explain the principle of commitment to resilience as described by Weick and Sutcliffe
- Identify the relationship of commitment to resilience to other principles
- Describe examples of commitment to resilience
- Identify common points that may describe failure to maintain a commitment to resilience by reviewing the Mount Rainier helicopter crash

Defining Resilience

- Latin….to spring or jump, to be buoyant, to bounce back
- …has adapted positively, quickly returns to or increases in performance and psychological well being (Riolli and Savicki)
- …the skill and capacity to be robust under conditions of enormous stress and change (Coutu)

Weick and Sutcliffe define resilience as:

- …having and developing the capability to detect, contain, and bounce back from those inevitable errors
- …a combination of keeping errors small and of improvising workarounds that keep the system functioning

Weick and Sutcliffe state that there are three parts to resilience…

- Building elasticity into the system

- Recovery

- Grow/learn from experience/bounce back

Additional research finds that resilience characteristics include…(Coutu)

- Acceptance of reality

- Searching for meaning with shared values and beliefs with those we work with (from an organizational perspective)

- Creativity (uncanny ability to improvise within established practices and procedures)

Relationship between HRO Principles

- Preoccupation with Failure
- Sensitivity to Operations

- Deferring to Expertise
- Reluctance to Simplify

Given the sessions you've had already, how would you describe the relationships of these principles with Commitment to Resilience?

AN ACTUAL CASE STUDY

What does Commitment to Resilience look like?

- Mount Rainier National Park, June 25, 2002
- Multiple rescues in a short time frame
- Limited staffing

- Middle of week
- Inexperienced pilot
- "Can do-must do" attitudes
- OAS…

Signals

- CWN Pilot, OAS carded, snow landings
- Experienced Helispot Manager (base trainee)
- Military Chinook on site

- Risk Management decision to use Jet Ranger instead of hoist from Chinook (OAS concerns)
- Assumptions about communications
- Not asking the right questions
- New group making decisions

Signals

- Filters in communication…
- Ranger/RMI Guide were picked up at a high camp and not briefed on site
- No communications with pilot in flight helmets
- Load calculations were not correct for conditions

What was the result?

Helicopter **CRASH**

- Helo crash at 9,000 ft., total loss of helicopter
- No injuries, but ranger/RMI Guide stayed on mountain to finish rescue
- Increased scrutiny of OAS/Investigation
- Contractor scrutiny/warnings for pilots operating outside limits of helicopter limits
- Strained relationships with military
- Strained relationships within staff

If this organization is resilient, what would you expect to see in response to this crash from the perspective of an HRO?

- revamping availability of staff
- ability to improvise, be creative
- engage experts in identifying shortfalls of programs (not necessarily within the structure)
- Identify capacities; and then develop more
- Ability to bounce back…missions don't stop

Is this what the Park did? No, instead…

- We instituted *more* policies and procedures, thereby removing the ability of the helo managers to be creative within already established policies and procedures
- We removed resilience opportunities by creating formalization and centralization of decisions (and not deferring to expertise)

Is this what Commitment to Resilience looks like?

But, the Park did eventually:

- Accept the reality for what it was…we stopped pointing fingers ("if I had been here it wouldn't have happened" dialogue)

- Talk about sharing the same values…we didn't want anyone to get hurt

- Get creative with the new limitations placed on us from the

crash…we still had the same
mission

How did we become focused on becoming resilient?

- Admitted we had made mistakes
- Took accountability as leaders
- Shared our intentions
- Threw out the new procedures, replaced them with trust and dialogue

- Communicated up the Ladder of Inference
- Incorporated HRO principles into our work without the labels
- This was a multi-year process

What does your lens see?

- Positives?
- Negatives?

- Can it be both?
- Are the lines really clear?

C. Tips

Get a clear definition of resilience *before* the presentation. Have one example that you can bring to the class that has excellent learning points—what you did right/what you did wrong.

Remember:

- Honesty in telling the story.

- Use stories to define resilience.

D. Problems

Resilience is a difficult concept to grasp and to define. To best understand the concept, it is recommended that the presenter do research beyond Weick and Sutcliffe's "Managing the Unexpected."

E. Resources

Additional resources are listed in the bibliography section of:

Weick, K. & Sutcliffe, K. (2007). Managing the Unexpected: Resilient Performance in an Age of Uncertainty – Second Edition. San Francisco. Jossey-Bass.

8. Deference to Expertise

A. Objectives

Upon completion of this unit, you will:

1) Describe the principle of "Deference to Expertise" as described by Weick and Sutcliffe;

2) Be able to use the terminology associated with the principle;

3) Have an example for leading a discussion and facilitating a practical exercise and demonstrating the principle—that you may apply, modify, or build upon; and

4) Be able to facilitate others in applying the principle to their work.

B. Lesson Outline – Teaching Outline with Talking Points

1. Empowerment

Mindlessness and Hope

The one thing we don't want to do is have a mindless organization. When people can't do anything about what they see, they feel helpless and lose hope.

If they see things that are wrong and can't act to fix them. If they bring up observations and suggestions and aren't heard. It isn't long before they stop seeing, stop speaking up, and stop trying to act.

When people feel helpless, they tend to act mindlessly.

There is no place like hope. With hope for the future, there is the power to change today. With the power to change today, there is hope fore the future.

It is our job, no matter our rank, to maintain and create hope in others.

"Encourage other leaders. When you see bravery, reward the act. When you see intelligence, reward the attribute. Bring forth potential leaders where one day you will be able to step down so another who is more capable can take your place. The group as a whole will be better for it. But in the meantime, you are truly the undisputed leader with little care for the position other than serving your organization." Sun Tzu The Art of War

We need to be stepping stones for others to help them succeed.

In doing so, we help ourselves, as well as our organizations and teams.

Empowerment

By enabling people to act change the things that they see and the problems that they encounter, we empower them. We empower them not by giving them our own power, but giving them the ability and latitude to speak up, make decisions, and take action.

Empowerment has many connotations.

Empowerment synonymous with authority

Empowerment is the most competent people having the most influence on most aspects of the organization.

<div align="right">(Kinlaw 1995)</div>

2. Empowerment Has Two Sides

Leadership

Willing to give up control

Give authority to make decisions as well as accountability for decisions. If operations are responsible for the outcome, they need to have authority to ensure those outcomes.

Ultimately supervisor is still responsible for all actions.

Create a safe environment (Just Culture)

For making mistakes -Mistakes are going to happen. It means you are being active, and if you're being active, error is inevitable. If people are continually spanked for errors of well intentioned actions, they will soon quit acting. No fingerpointing – look for the problem, not at the people

For questioning actions- even if it is someone of higher rank and experience.

For speaking up

Operations

    Competency

Must possess an adequate and functional skill and knowledge set for the position that they are in

Have the potential to make an influence to improve performance

Willingness to seek and accept responsibility and accountability

Willing to take ownership of a project, segment of line, or operational mission. With that, accept the responsibility of the outcome and accountability for their actions.

Responsibility to act under the leaders intent and goals and objectives of the mission or project.

Responsibility to keep decisions within given sideboards and within expertise and skill level. It is a sign of strength and confidence to know when you have reached your limits of knowledge and know enough to enlist outside help. In my experience, this is often times not received as such in the fire organization

3. Empowering Operations

Value People
    Listening
    Genuine Caring
    This includes even the lowest ranking

Build Competency
    Provide Development Opportunities and Training
    Encourage people to get outside their comfort zone

"How many immerse themselves in the goal of creating an environment where the best, the brightest, the most creative are attracted, retained and, most importantly, unleashed?" Colin Powell

We all have a responsibility to build competencies in firefighters.

Example of the leaders who surround themselves with incompetence.

We all have a responsibility to promote only those who meet those qualification standards.

Delegate Authority and Impact Opportunities
    Involve them in planning

Provide sideboards for their authority and decision-making process

Share Information
        Leader's intent
        Goals and Objectives
        Why decisions were made

Encourage Innovative Thinking and Questions

Reinforce Trust, Credibility, and Attentiveness

Reward Empowered Behavior

These are all things that must be used and practiced every day. People need to feel at ease using these traits before the unexpected happens. It takes a lot of effort and time

The past settles its accounts when something unexpected begins to incubate.

The ability to deal with a crisis situation is largely dependent on structures that have been developed before the chaos arrives.

"An unexpected event can in some ways be considered an abrupt and brutal audit: at a moments notice everything left unprepared becomes a complex problem and every weakness comes rushing to the forefront."

4. Benefits to the Team and Organization

Increased Mindfulness

Encourages mindfulness as well as requires mindfulness.

With every problem, someone somewhere sees it coming. But those people tend to be low rank, invisible, unauthorized, and reluctant to speak up. If people feel unimportant or helpless to enact change, they won't speak up.

Increased Expertise

The training and experience provided increases competence throughout the organization.

This is expertise that can be used and relied on. If we are really doing our job right, many of those working for us will become experts with knowledge above and beyond our own

Increased Productivity

Being empowered maintains motivation.
Climate of responsiveness.

5. The Structure to Make It Happen

Typical Bureaucracy

An organization structure with a rigid hierarchy of personnel that is regulated by set rules and procedures

Important choices are made by important high ranking decision makers. Status and rank determines who makes the choices. Members of the organization demonstrate deference to the powerful coercive, senior, experienced. These hierarchies and deference to power and politics can work against managing the unexpected because people are not likely be feel empowered, so they work mindlessly.

Mistakes at higher levels in a rigid hierarchy tend to pick up and combine with errors at lower levels to make a problem escalate.

Flexible Control Structure

Flexible hierarchies push decision making down and around. Decisions are made on the by the operations people, authority migrates to the people with the most expertise, regardless of rank.

A flexible control structure puts into practice the principle that experience and expertise are usually more important than rank.

"Organization charts and fancy titles count for next to nothing .In well-run organizations, titles are also pretty meaningless. At best, they advertise some authority, an official status conferring the ability to give orders and induce obedience. But titles mean little in terms of real power, which is the capacity to influence and inspire. Have you ever noticed that people will personally commit to certain individuals who on paper (or on the organization chart) possess little authority, but instead possess pizzazz, drive, expertise, and genuine caring for teammates and products? On the flip side, non-leaders in management may be formally anointed with all the perks and frills associated with high positions, but they have little influence on others, apart from their ability to extract minimal compliance to minimal standards." General Colin Powell

In a flexible control structure, important decisions are still made by important decision makers, but the twist is the designation of who the important decision maker is keeps changing. The designation of who is important migrates to the person or team with expertise in that problem area. Which means when the unexpected happens, it goes to the guy who has

the bubble. Leadership is shifted to person or team with the answer to the problem at hand. Decisions migrate up as well as down the chain of command to find the expertise to solve the problem

Decisions have to be made quickly and accurately, so those people closest to the problem are empowered to make important decisions and are held highly accountable for those decisions. Accountability=Responsibility and the uncomfortable feelings that go with it. This lead to decisions being pushed back up the hierarchy, especially when an
Unusually unique event occurs

Hierarchical patterns of authority certainly exist in a flexible control structure, but relies on expertise rather than authority. A flexible control structure blends hierarchical decision structure with a specialist decision structure. This achieves flexibility as well as orderliness.

What makes this flexible control structure possible? Mindfulness

The loosening of hierarchical constraints is facilitated by having a mindful system in place. Mindfulness creates the attentiveness necessary to link problems, solutions, and decisions in the moment. Mindfulness also creates a subtle loosening of the hierarchy by the conversations created and the interactions. The loosening in hierarchy works to further increase the flow of information.

If people don't understand, they ask for help.

In a macho world this is frowned upon. It is not allowed to be frowned upon in a properly functioning HRO.

Management vs. Leadership

Management is a system with hierarchical bureaucracy rules.
Leadership is a structure where expertise rules

Left hand side of the chart characteristics of rigid hierarchical bureaucracies with strict rules, regulations, and standard operating procedures.

Right hand side of the chart in line with HRO, Leadership in Wildland Fire Principles, Doctrine, Empowerment, and Flexible Control Structure and Culture

Centralization and Decentralization
Karl and Kathleen talk about a balance of decentralization and centralization

"Those who invest heavily in plans, standard operating procedures, protocols, recipes, and routines tend to invest more heavily in mindlessness than in mindfulness. A heavy investment in plans restricts sensing to expectations in those plans and restricts the responding actions built into the existing repertoire." (Weick and Sutcliffe 2007)

Those implementing the plan may not even rely on their own expertise, but on the plan.

We need these plans and expertise.....but they need to be taught to be used mindfully.

Group Discussion

Burn Plan Example
Very detailed plan with elaborate maps and in depth burn patterns.
Consider that escape burn plan reviews generally focus on the plan

LCES Example

Self Discipline
Self discipline in flexible control structures
Culture as a control mechanism
Those who are not competent or don't comply with the principles are pushed to the periphery of the organization (from Weick and Sutcliffe)

Group Discussion:
How does self-discipline fit in with the 4 important cultures of an informed culture?

How do you perceive this working in the wildland fire organization?

6. HRO Hallmark – Deference to Expertise

HRO as a Framework

The concept of HRO gives a framework for the functioning of leadership principles. It gives context to where we are trying to go with the program. Leadership courses predominantly teach skills to be a better leader. HRO concepts portray how these all work together to create an organization that can manage the unexpected more reliably, as well as function more efficiently at managing the everyday expected events.

As we saw in the last chart, flexible control structures and many of leadership qualities that are being taught in L-courses and in doctrine overlap a great deal. "Deference to Expertise" is nearly synonymous with a flexible control structure.

Deference to expertise

HROs not only have experts to defer to, they do it.

Deference to expertise is pushing decision making down and up and around.

It is using a flexible control structure.

It is differentiating between normal times, high temp times, and emergencies.

It is deferring to those who know to:
Sensemake
Provide updates on changing conditions and environments
Make decisions and take action
Speak up about things that aren't quite right
Inform about operational activities

The ability to defer to expertise won't just appear during an unexpected event, it has to be practiced. It starts on a young firefighter's first day. It needs to be used in linebuilding projects, single snag fires, as well as Type 1 Incidents. Decision-making and acting on these decision requires a knowledge, skill and confidence that is built.

Once the capacity it built, reliance on expertise can extend the ability to manage unexpected event and update situational awareness. Since a leader only "sees" what they can manage, by deferring to expertise, can manage more and see more.

Deference to expertise contributes to nearly every other hallmark

Barriers to Implementation

It is too easy to espouse these principles, but it is harder to make them happen.

Current Culture
Example, mid level managers could be the most influential on developing a flexible culture, but some may embrace these ideas because the organization itself punishes them for what the lower levels are asking. People aren't opposed to doing things that help others do their jobs better, but they can be opposed to things that might make them look bad ------certain things are very engrained into the fire organizations way of thinking.

Group Discussion this Topic*

Simplification
It is time consuming and difficult. It makes things more complicated. The higher you move up the management organization, the less direct control you have. You have to trust more people. It is simpler to revert back to centralized management measures. It can seem much easier to manage than lead, or to control instead of command

Group Discuss this Topic*

Out of Touch
If you are out of touch with the operations, it is very easy to start simplifying the situation and make decisions from the top, even though you don't know what is going on. People build a picture in their mind and that is the truth to them. They have a tendency to act on that picture. Not being sensitive to ops can have a serious effect on DTE.

Group Discuss this Topic*

Control
Overwhelming need for some people to have all the power and control.
Or, they just don't have the skills necessary to lead in a flexible structure.

Group Discuss this Topic*

Are there any other barriers that you can think of?

Deference to Expertise from Different Perspectives

The fire organization has many different scales of view (crew, workstation, unit, forest, region, national) and we work at different hierarchical levels. We also work together in many different situational settings (project work, prescribed fire, initial attack, and large incidents.) At least for the time being, the endorsement or embracing of HRO principles including the flexible decision structure and deference to expertise is likely to be different at each of these scales, in different geographic regions and agencies, and in different types of activities.

There are many aspects to deferring to expertise and the use of a flexible decision structure in these different scales and settings. We could actually talk about just this hallmark for many more hours in those different contexts….we don't have the time. We will work on some of them in application exercise.

7. Small Group Exercises

Overview of Scenarios
- Carrying the Torch
- A Higher Standard
- At the Big One
- Pressure is on
- Living in a rigid hierarchy

9. Teaching HRO to Others

A. Objectives

Upon completion of this unit, you will:

1) Share, through facilitated discussion, ideas on how to teach HRO to others and inventory and discuss available resources, case studies, etc.

B. Lesson Outline

Resources for Teaching HRO (all principles) to Others

- Some sports teams are HROs. Three sports books that verify this:

    - "Leading with the Heart" by Mike Krzyewski
    - "My Story" by Bobbie Knight
    - "Essentials of Leadership" by John Wooden

- L 180 to 280 courses all build leadership. Therefore, when you teach these courses, try to tie in HRO as an additive (situational awareness)—find common HRO threads.

- We should also bring in module leaders to teach these. The closer you get to ground, the more it's going to make sense to people.

- Another good book on leadership: "Team of Rivals" by Doris Kearns Goodwin on Abraham Lincoln.

- There is excellent DVD material on Lessons Learned Website, including productions from the David Garvin series, achieving learning organization; Decision-making in wildland fire and fire use; burn boss stories. These are available at: http://www.wildfirelessons.net/Additional.aspx?Page=81

Goals:

- Get the terminology in advanced L-courses to be similar to HRO training.

- Make a stronger, proactive link between leadership and HRO.

10. HRO Café

A. Objectives

1) Create and/or clarify ideas for teaching HRO principles.

2) Grow HRO community of practice through peer interaction and sharing of ideas. Strengthen the collective intelligence of the community.

3) Allow workshop participants to process information learned during the workshop through small-group discussion.

4) Establish participant commitment for action in teaching HRO after the workshop.

B. Lesson Outline

Because the World Café is a process, it does not lend itself to a lesson plan. The discussion that occurs during the café session creates its own lesson. There are many different ways to design a successful café. The description below can be modified to fit your needs. Crafting the right discussion questions is the most important factor in ensuring that learning occurs.

The café has multiple benefits in addition to the stated objectives. It allows people who have not yet interacted with each other during a workshop to spend time together and exchange ideas. It provides a forum for people who do not like to speak up in a large group, but have ideas they want to share. It also allows participants to explore more deeply ideas they have been thinking about during previous sessions.

Most of the work in using the World Café process is in preparation before the café begins, especially in 1) choosing the right questions for discussion, and 2) making sure the café table hosts understand their role. It is preferable to choose table hosts in advance. You should brief them a day or two ahead of time and give them the discussion questions so that they can prepare and ask the café organizer questions about anything that is unclear. A sample briefing handout for table hosts is included with this lesson outline.

The process consists of rounds of discussion at small café-style tables. There is a table host that remains at the table for all discussion rounds. The role of the host is primarily to encourage discussion, make sure the discussion stays on topic, and make sure key ideas are recorded on paper to be shared later with the group. The number of people at each table should be no more then five, including the table host.

The discussion takes places during rounds that may vary in length, typically 15 to 25 minutes each. During each round, the participants are presented with one question for discussion. The questions can be printed as a café menu and placed on each table (sample included with this lesson outline). All tables in the café discuss the same question during the same round.

The table host or a participant records key ideas on large sticky notes or butcher paper on the table.

After a set time, the café organizer (or host) indicates it is time to conclude that discussion and move to a different round. Participants stand and randomly move to another table. The participants should not move as a group to a new table – the idea is to mix people up. The table hosts then introduce the second question and another round of discussion begins. Participants can look at the notes on the table from the previous question's discussion.

The rotations continue for the number of questions chosen by the organizer. When the rounds are finished, the participants and hosts move the notes with their ideas to a rear or side wall where they are assembled, typically organized by question. Participants and hosts take a few minutes to read each other's notes and look for themes or outstanding unique ideas.

The group then reassembles as a whole for the integration phase. The café host leads a discussion to bring out themes, a-ha moments and unique ideas. This phase can be thought of as dessert for the café. Find the sweet ideas and share them, providing closure and ending on a satisfying note.

You may choose to pass out commitment cards at the end of the café to encourage people to commit to some action they will take to teach others about HRO or put the principles into action. Collect and compile the commitments and share them with the cadre and participants at a later time.

An example of HRO café questions:

1. What has been your major learning insight or discovery from this workshop that will help you be an effective facilitator of high reliability organizing?
2. What ideas or concepts have you been thinking about teaching high reliability that no one has yet expressed in the workshop?
3. How can we strengthen our HRO community of practice and support each other as we go through the next year teaching high reliability concepts? Make a diagram of connections we can build.

C. Tips

If you are going to brief the group on what to expect at the café, do so before a break, then make sure they all leave the room. During the break, reset the room for the café, so that when they return the atmosphere has changed.

The atmosphere in the room is very important to the success of the discussion. It may sound simple or even corny, but small touches like checkered tablecloths, café menus, and colorful sticky notes refresh people and encourage them to think more deeply or differently than they have before. Music is also important as the people enter the room and to indicate breaks between discussion rounds. The musical choice can be appropriate to the geographic area of the meeting, classical soothing, or more lively.

Be sure there are plenty of markers or crayons in a cup on each table so that the host and participants can doodle or make notes freely.

It is nice to have small snacks available (crackers, small candies, coffee, tea) to encourage the café atmosphere.

The integration phase at the end of the discussion is important to tie the café together and bring it to a conclusion, so be sure to allow enough time on the agenda for it. Sometimes it takes encouragement and persistence to pull ideas from people when they move from the small, more intimate discussion groups back to the bigger group. The host or leader of the integration phase should be prepared to wait and let the ideas emerge.

D. Problems

Participants may become confused as to the process. It is best to brief everyone before the café begins, and have helpers available to guide people to their tables and answer questions.

When discussion is active and participants are fully engaged, they may not hear the musical or verbal direction to change to a new table to begin the next question phase. Keep an eye out to be sure that people notice it is time to switch. It may be helpful for the host to wear a lavaliere microphone to be heard over the discussion when it is time to get people to move.

One table host found it was difficult to use both the sticky notes and the butcher paper on the table. As long as thoughts are captured in some way, it's okay to be flexible on this.

E. Resources

There are many resources available on the World Café process. A few of them include:

The World Café Website:
<http://www.theworldcafe.com/>

Hosting Guides, especially "Café to Go":
<http://www.theworldcafe.com/hosting.htm>

The World Café Book:
The World Café: Shaping Our Futures Through Conversations That Matter
by Juanita Brown and David Isaacs

IV Personal Resources – HRO People in the Know

1. Establishing Context

For more information, contact:

Paula Nasiatka, Manager, Wildland Fire Lessons Learned Center

520-799-8760   pnasiatka@fs.fed.us

Jim Saveland, Program Manager for Human Factors and Risk Management, Rocky Mountain Research Station

970-498-1193   jsaveland@fs.fed.us

2. Introduction to the Concepts of Mindfulness and Error Resilience

For more information, contact:

Mike DeGrosky, Chief Executive Officer, The Guidance Group, Inc.

406-689-3367   MTD@smtel.com

3. Communication, Advocacy, and Preconditions

For more information, contact:

Anne E. Black, Interdisciplinary Social Scientist/Ecologist (Post-doctoral), Aldo Leopold Wilderness Research Institute

406-329-2126   aeblack@fs.fed.us

D. Dether, Forest Fuels Planner, Boise National Forest

208-373-4180   ddether@fs.fed.us

4. Preoccupation with Failure

For more information, contact:

D. Dether, Forest Fuels Planner, Boise National Forest

208-373-4180   ddether@fs.fed.us

5. Reluctance to Simplify

For more information, contact:

Anne E. Black, Interdisciplinary Social Scientist/Ecologist (Post-doctoral), Aldo Leopold Wilderness Research Institute

406-329-2126   aeblack@fs.fed.us

Chad Fisher, Training Specialist, U.S. Fish and Wildlife Service

208-387-5986   chad_fisher@fws.gov

6. Sensitivity to Operations

For more information, contact:

Dave Thomas, Renoveling, (on contract to the Wildland Fire Lessons Learned Center and research associate with the Aldo Leopold Wilderness Research Institute)

801-782-2912   renoveling@msn.com

Paul Chamberlin, Safety Specialist, Northern Rockies Fire Operations

406-329-4965   pchamberlin@fs.fed.us

7. Commitment to Resilience

For more information, contact:

Jill Hawk, Regional Chief Ranger, National Park Service, Northeast Regional Office

215-597-3679   jill_hawk@nps.gov

8. Deference to Expertise

For more information, contact:

Melinda Martin, Fuels Specialist
Vale District, Bureau of Land Management, Baker Field Office,
Baker City, Oregon

541-523-1927   msmartin@blm.gov

9. Teaching HRO to Others

For more information, contact:

Mike DeGrosky, Chief Executive Officer, The Guidance Group, Inc.

406-689-3367   MTD@smtel.com

10. HRO Café

For more information, contact:

Paula Seamon, Director of Fire Management and Training,
The Nature Conservancy

850-668-0926   pseamon@tnc.org

V HRO Assessment Tools/Audits: What's Your Score?

The following HRO audit exercises are reprinted here with permission from Karl Weick and Kathleen Sutcliffe, authors of *Managing the Unexpected: Resilient Performance in an Age of Uncertainty – Second Edition.*

(A similar audit exercise for Preoccupation with Failure is available on page 19.)

Assessing Your Firm's Reluctance to Simplify

How well do the following statements describe your work, unit, department, or organization? For each item, circle the number that best reflects your conclusion: 1 = not at all, 2 = to some extent, 3 = a great deal.

1. People around here take nothing for granted.

   1   2   3

2. Questioning is encouraged.

   1   2   3

3. We strive to challenge the status quo.

   1   2   3

4. People feel free to bring up problems and tough issues.

   1   2   3

5. People generally deepen their analyses to better grasp the nature of the problems that arise.

   1   2   3

6. People are encouraged to express different views of the world.

           1   **2**   **3**

7. People listen carefully, and it is rare that someone's view goes unheard.

           1   **2**   **3**

8. People are not attacked when they report information that could interrupt operations.

           1   **2**   **3**

9. When something unexpected happens, people spend more time analyzing than advocating for their view.

           1   **2**   **3**

10. Skeptics are highly valued.

           1   **2**   **3**

11. People trust each other.

           1   **2**   **3**

12. People show considerable respect for one another.

           1   **2**   **3**

Scoring

Add the numbers. If you score higher than 24, the potential to avoid simplification is strong.

If you score between 15 and 24, the potential to avoid simplification is moderate.

Scores lower than 15 suggest that you should be actively considering how you can immediately improve your capabilities to prevent simplification in order to improve your firm's capacity for mindfulness.

Assessing Your Firm's Sensitivity to Operations

Indicate whether you agree or disagree with each of the following statements about your work unit, department, or organization.

1. On a day-to-day basis, there is always someone who is paying attention to what is happening.

Agree/Disagree

2. Should problems occur, someone with the authority to act is always accessible to people on the front lines.

Agree/Disagree

3. Supervisors readily pitch in whenever necessary.

Agree/Disagree

4. People have discretion to resolve unexpected problems as they arise.

Agree/Disagree

5. During an average day, people interact often enough to build a clear picture of the current situation.

Agree/Disagree

6. People are always looking for feedback about things that aren't going right.

Agree/Disagree

7. People are familiar with operations beyond their own job.

Agree/Disagree

8. We have access to a variety of resources whenever unexpected surprises crop up.

Agree/Disagree

9. Managers constantly monitor workloads and reduce them when they become excessive.

Agree/Disagree

Scoring

Count the number of "agree" and "disagree" responses. The greater the number of "disagree" responses, the less the sensitivity to operations.

Use these questions to begin thinking of ways to improve your sensitivity to operations and capacity for mindfulness.

Assessing Your Firm's Commitment to Resilience

How well do the following statements describe your work unit, department, or organization? For each item, circle the number that best reflects your conclusion: 1 = not at all, 2 = to some extent, 3 = a great deal.

1. Resources are continually devoted to training and retraining people to operate the technical system.

    1   **2**   **3**

2. People have more than enough training and experience for the kind of work they do.

    1   **2**   **3**

3. This organization is actively concerned with developing people's skills and knowledge.

    1   **2**   **3**

4. This organization encourages challenging "stretch" assignments.

    1   **2**   **3**

5. People around here are known for their ability to use their knowledge in novel ways.

    1   **2**   **3**

6. There is a concern with building people's competence and response repertoires.

    1   **2**   **3**

7. People have a number of informal contacts that they sometimes use to solve problems.

    1   **2**   **3**

8. People learn from their mistakes.

    1   **2**   **3**

9. People rely on one another.

    1   **2**   **3**

10. Most people have the skills to act on the unexpected problems that arise.

    1   **2**   **3**

Scoring

Add the numbers. If you score higher than 20, the commitment to resilience is strong.

If you score between 12 and 20, the commitment to resilience is moderate.

Scores lower than 12 suggest that you should be actively considering how you can immediately begin building resilience and the capacity for mindfulness.

Assessing the Deference to Expertise in Your Firm

How well do the following statements describe your work unit, department, or organization? For each item, circle the number that best reflects your conclusion: 1 = not at all, 2 = to some extent, 3 = a great deal.

1. People are committed to doing their job well.

    1   **2**   **3**

2. People respect the nature of one another's job activities.

    1   **2**   **3**

3. If something out of the ordinary happens, people know who has the expertise to respond.

    1   **2**   **3**

4. People in this organization value expertise and experience over hierarchical rank.

    1   **2**   **3**

5. In this organization, the people most qualified to make decisions make them.

    1   **2**   **3**

6. People typically "own" a problem until it is resolved.

    1   **2**   **3**

7. It is generally easy to obtain expert assistance when something comes up that we don't know how to handle.

    1   **2**   **3**

Scoring

Add the numbers. If you score higher than 14, the deference to expertise is strong.

If you score between 8 and 14, the deference to expertise is moderate.

Scores lower than 8 suggest that you should be actively thinking of ways to improve the deference to expertise and capacity for mindfulness.

The Mindfulness Organizing Scale

How well do the following statements describe your work unit, department, or organization? For each item, circle the number that best reflects your conclusion:
1 = not at all, 2 = to some extent, 3 = a great deal.

1. We have a good "map" of each person's talents and skills.

     1   2   3

2. We talk about mistakes and ways to learn from them.

     1   2   3

3. We discuss our unique skills with each other so that we know who has relevant specialized skills and knowledge.

     1   2   3

4. We discuss alternatives as to how to go about our normal work activities.

     1   2   3

5. When discussing emerging problems with coworkers, we usually discuss what to look out for.

     1   2   3

6. When attempting to resolve a problem, we take advantage of the unique skills of our colleagues.

     1   2   3

7. We spend time identifying activities we do not want to go wrong.

     1   2   3

8. When errors happen, we discuss how we could have prevented them.

     1   2   3

9. When a crisis occurs, we rapidly pool our collective expertise to attempt to resolve it.

     1   2   3

Scoring

Add the numbers. If you score higher than 17, your firm's mindful organizing practices are strong.

If you score between 11 and 17, your firm's mindful organizing practices are moderate.

Scores lower than 11 suggest that you should be actively thinking of ways to improve your firm's mindful organizing practices.