

Enhancing the Effectiveness of “Learning Groups”: *An Approach to Consider*

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Stipulation:

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This presentation is based upon the considered, professional opinions of the author developed in the course of a 46 year career in the US Nuclear Industry.

Professional Differences of Opinion, disagreement with content, and constructive criticism from attendees are encouraged!

“Learning Group” & Related Presentations at Recent HPRCTs ...

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- Proposed “Learning Groups” (LGs) as replacement for traditional RCA to get away from “Blame” & “Linear Thinking.”
- Said little about how to make an LG work, including discussion of:
 - When an LG is (and is not) appropriate;
 - A methodology for LG evals (beyond “listen to those involved”);
 - Attributes of “successful” LGs;
 - Potential problems with LGs & what to do about them.

Learning Groups

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- Have been utilized in industry for at least 40+ years in one form or another.
- Are susceptible to the “Blame Trap” unless properly implemented (as is every other event investigation approach).
- Can add substantial value when used appropriately.
- Can create major problems when used poorly.
- Have multiple potential applications.

“Inescapable Truths” About Effective LGs

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1. Have a purpose, assigned scope, and defined deliverable.
2. Are staffed with appropriate members.
3. Led by someone who leads without over-directing, inappropriately steering, or silencing input.
4. Have a methodology with an entry point and an output.
5. Reach full understanding of the event (& know they did so) before drawing conclusions & making recommendations.
6. Comply with regulations and Quality Programs, where applicable.

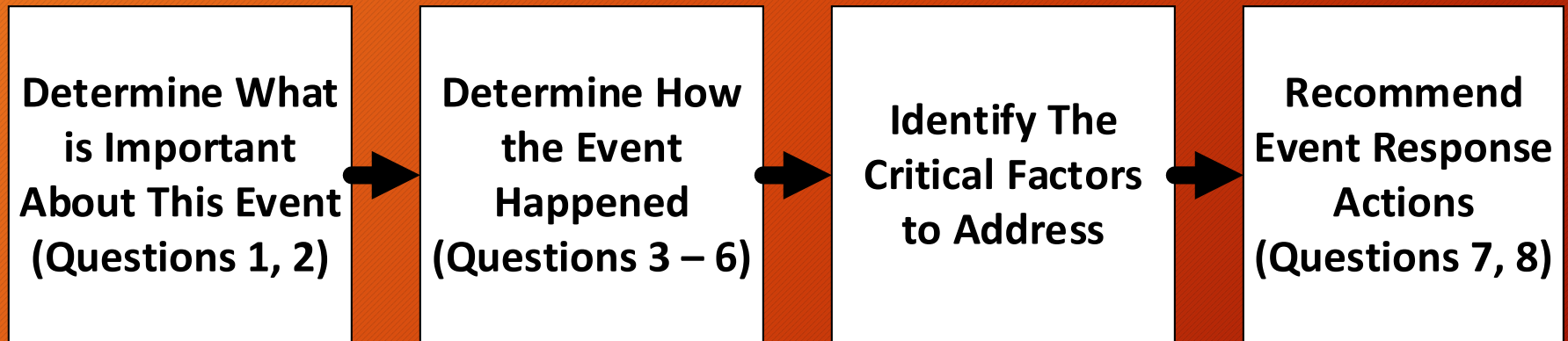
LGs are Appropriate for Event Investigations When:

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- Information/information sources are available & accommodate being structured in advance for use by the LG.
- Sufficient event information is presented to the LG as a body to support understanding of the event within a “reasonable time.”
- Interviews are not the only source of information about “critical factors.”
- The event does not involve major emotional turmoil.

Evaluation Methodology: One Approach

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(A non-linear, iterative methodology that is portrayed linearly for convenience.)

Evaluation Methodology: The “8 Questions”

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1. What are the event consequences?
2. What is the event significance?
3. What made us vulnerable to this event?
4. What transformed the vulnerability into an event?
5. What made the event worse than it might have been?
6. What kept the event from being even worse than it was?
7. How should we change our thinking in response to this event?
8. What actions should we take in response to this event?

Determine Event Importance Consequence vs. Significance

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Consequence: An identifiable and describable adverse outcome of an event that has:

Nature

Magnitude

Location

Timing

Significance: What the event could mean to the future of the organization (and members) affected by the event.

Determine Event Importance Consequence vs. Significance Restated

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Consequence: The pain we feel from this event.

Significance: The future pain we are likely to feel if we don't fix the problems revealed by this event.

Determine Event Importance

Key Questions 1 and 2:

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1. What are the event consequences?

What pain are we feeling or likely to feel from this specific event?

2. What is the event significance?

Why should we care? What are the implications for the future (from similar events) if we don't identify and fix the factors that caused this event?

Determine Event Importance

Process Comments

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- Significance should determine level of effort and resources we expend on this inquiry.
- Consequence establishes the entry to the event evaluation—pick a major consequence to evaluate and determine the critical factors that led to that outcome.

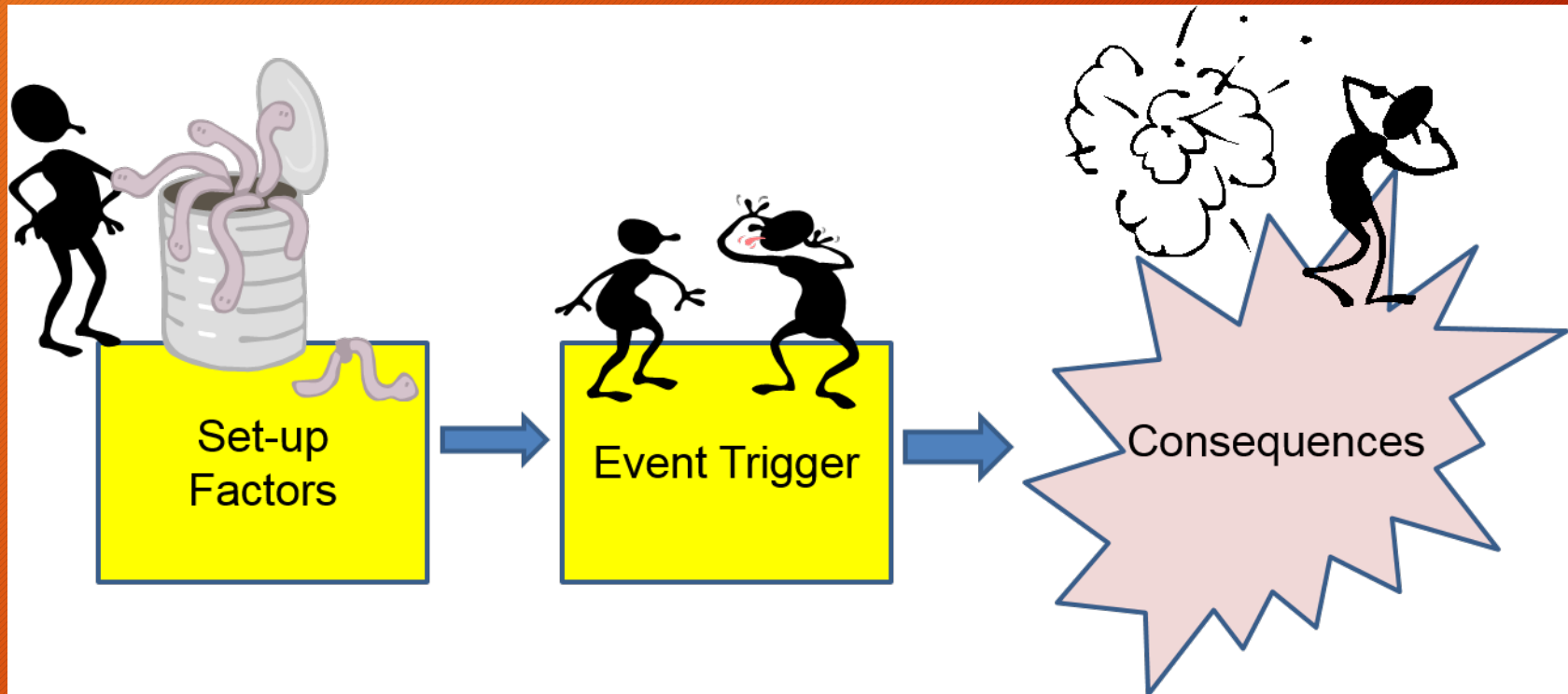
How Events Happen: “Inescapable Truths”

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- Events are rarely (if ever) linear;
- Events rarely (if ever) have one cause;
- Event models cannot be linear if they are to effectively explain the event;
- Event investigations based on linear models, or linear thinking, are doomed from the start to fail;
- For at least the past 25 years, competently conducted event investigations have avoided use of linear models or linear thinking.

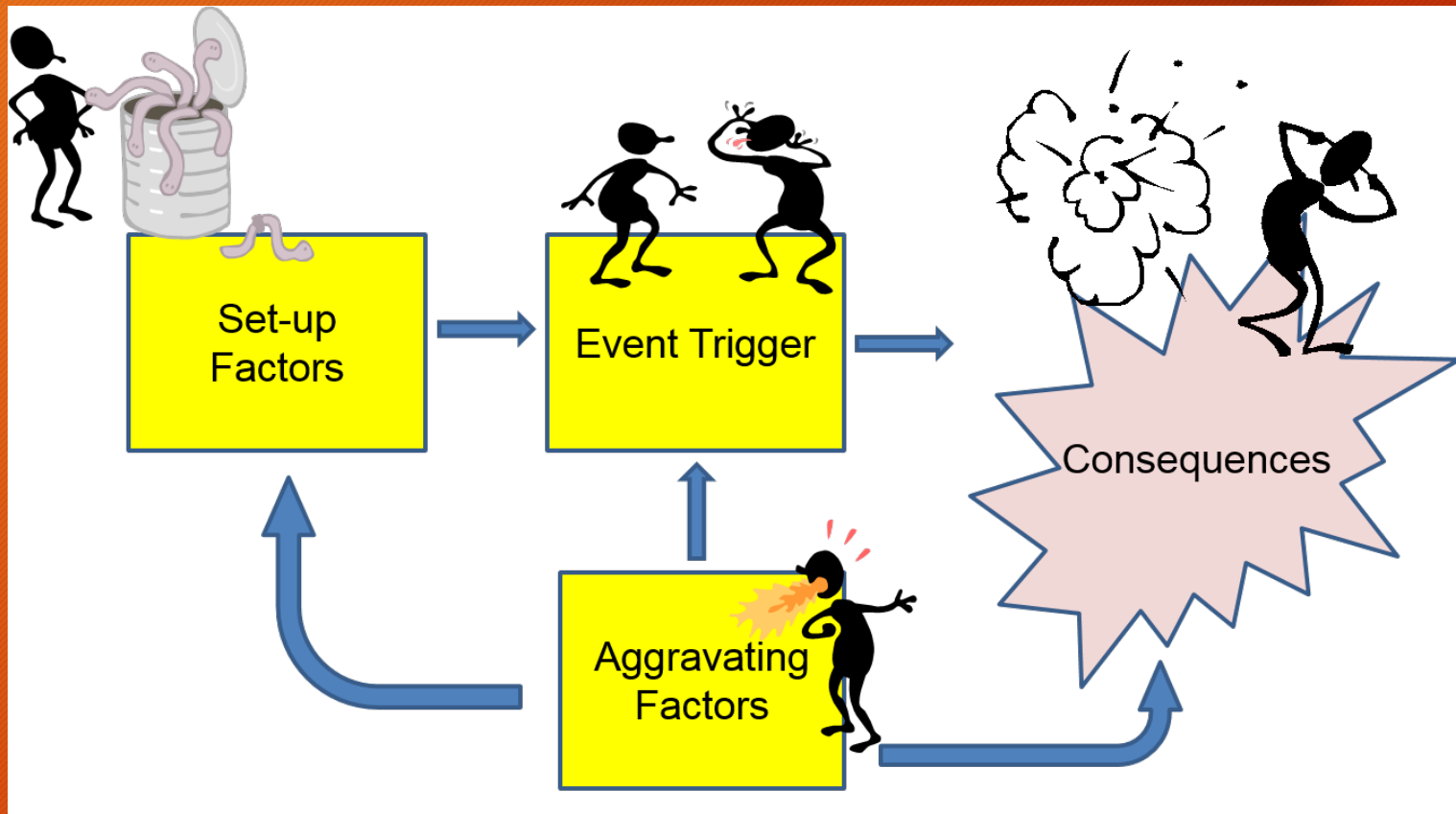
How Events Happen: Minimum Consequence Event

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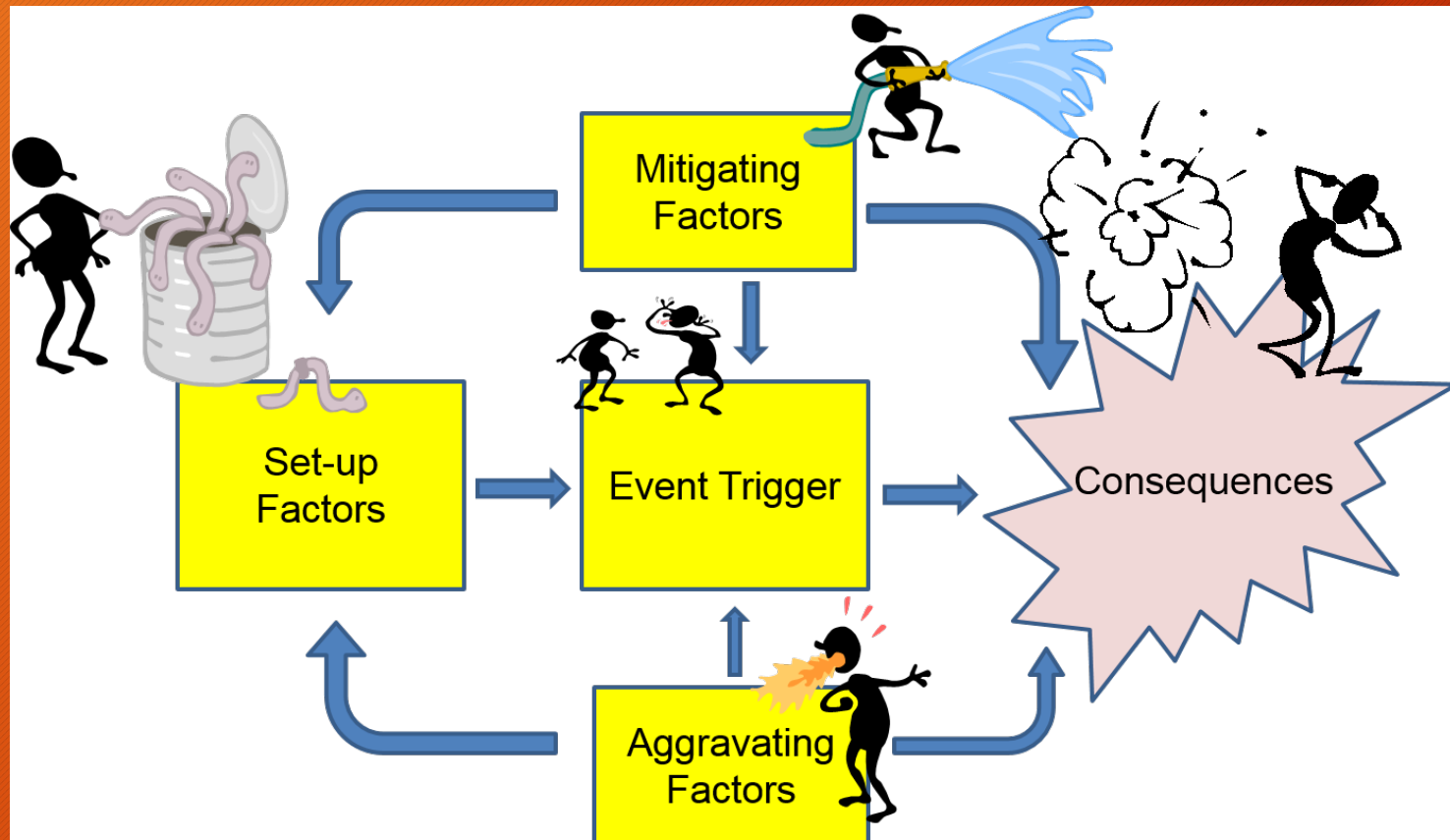
How Events Happen: What it Takes to Get Severe Consequences

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How Events Happen: The Usual Case

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Determine How this Event Happened

Key Questions 3 through 6

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3. What factors made us vulnerable (set us up) to this event?
4. What factor(s) transformed the vulnerability into an event with consequences?
5. What factors made the event worse than it might have been?
6. What factors kept the event from being even worse than it was?

Determine How This Event Happened

Process Comments (1)

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- Continue evaluating the event until we can answer questions 3 through 6 (plus questions 1 and 2).
- We will almost certainly have to iterate through questions 3 through 6 several times.
- Ask, “What is missing?” and “What is wrong with our picture?” to identify areas where more information is needed.
- Evaluate to a depth and level of effort consistent with event significance.

Determine How This Event Happened

Process Comments (2)

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- Document answers to all 8 Key Questions: this becomes the core of our evaluation report.
- Do not neglect question 6 (Mitigating Factors) for two reasons:
 1. We don't want our recommendations to undo what worked correctly in this event;
 2. When "Luck" mitigated the event, take note—it is not a robust barrier to future events and may indicate that something is missing (a 'negative causal factor').

Determine How This Event Happened

Process Comments (3)

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Avoid Blaming

- LGs are just as susceptible as other approaches to the “Blame Trap”.
- People make the choices they make for reasons that seemed valid at the time.
- We need to understand the reasons for those choices before we can understand the event.
- In significant events, the underlying event causes are usually related to the way people were “set up” to fail.

Identify Critical Factors to Address

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- Identify the most influential Critical Factors (causal elements) noted in questions 3 through 6 (to address through recommended actions).
- Validate that correcting the designated Critical Factors will sufficiently address the event to a depth and breadth commensurate with event significance.

Identify Critical Factors to Address *Process Comments (1)*

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- Address the factors that matter;
not every problem needs to be fixed.
- Validate the designated Critical Factors as central to the event:
 - Common sense “sanity check”;
 - Factor/Consequence Matrix or other tool.

Make Recommendations

Key Questions 7 and 8

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7. How should we change our thinking in response to this event? (What are the “Lessons to be Learned”?)
8. What actions should we take in response to this event?

Make Recommendations

Process Comments (1)

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- Take care that recommendations do not remove “Mitigating Factors.”
- Propose “SMART” Corrective Actions:
 - Specific, clear, and concise
 - Measurable and verifiable
 - Actionable/Accountable
 - Reasonable and specifically assigned
 - Timely and correctly scheduled

Make Recommendations

Process Comments (2)

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- Validate that each designated Critical Factor has proposed action (or a reason why it doesn't).
- Validate that each proposed action links to a designated Critical Factor.
- Validate that proposed actions address our designated Critical Factors (causal elements) to a level commensurate with event significance.
- Document answers to all 8 Key Questions.

Make Recommendations

Process Comments (3)

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Management decides what to/what not to fix:

- Management has that authority.
- Management has the responsibility to manage resources & disruption from change.
- If a problem that management chooses not to fix is significant, it will return and someone else will have a chance to fix it when it does.

One Personal LG Success (alternative application)

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- 2001 Event – Near Destruction of Fossil Plant.
- Complex event that required RCA lasting 13 weeks.
- VP of Operations: “You gotta tell me who to fire!!”
- Formed “Learning Group” of senior managers (including VP) for reporting conclusions/recommendations.
- Presented event information in structured “case-study” of the event over six hour period.
- The LG drew its own conclusions: “Everyone did what we told them we wanted.”

Take-Aways (1)

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- Regardless of the approach we take to respond to an event, we must understand the event before we can address it.
("Surgery before diagnosis is malpractice.")
- Effective LGs are managed evolutions that employ a deliberate methodology; they do not "just happen."

Take-Aways (2)

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- Some events are not appropriate to address by LGs because:
 - Key information necessary to understand the event is not available.
 - Event is too complex to digest in a one-day meeting.
 - The event involves major emotional turmoil.
 - Interviews are the only source of information about “critical factors.”

Questions, Comments, Disagreements, & Discussion

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Richard N. Swanson, P.E. is the founder and president of Performance Management Initiatives, Inc., a consulting practice that focuses on industrial investigations and performance improvement for high hazard industries, since 1996.

Mr. Swanson is the co-editor of *The Firebird Forum*, a monthly newsletter focused on achieving organizational renewal following major consequential events. The newsletter is distributed to approximately 5,500 individuals monthly, and is in its 21st year of publication. To subscribe to *The Firebird Forum*, please send an email to: TheFirebirdForum-subscribe@yahoogroups.com.

He has 46 years of experience with organizations in capital-intensive technical industries. Budgetary responsibilities have included annual budgets of \$245 million (capital) and \$74 million (expense), with management responsibility for organizations of up to 550 employees. Line management responsibilities at nuclear utilities have included Engineering General Manager, Quality Assurance Director, Nuclear Safety Assessment Manager, Regulatory Affairs Director, Director of Project Management, and Construction Manager.

He has close to three decades of formal causal analysis and Employee Concerns investigation experience, and has supported more than 45 clients distributed among nuclear and fossil generating companies; uranium enrichment facilities; electric transmission and distribution companies; manufacturing organizations; DOE; NRC; state agencies; and legal firms.. The majority of his investigations have included consideration of management effectiveness, process and program breakdowns, and training program content and effectiveness. He has investigated a substantial number of equipment failures, personnel errors, and Corrective Action Program breakdowns, as well as allegations of harassment, intimidation, retaliation, discrimination, and "chilling effect."

He is formally trained in a number of methodologies, including Phoenix, SOURCE, and the PII methodology; and is conversant with others, including TapRoot and MORT. He has developed and delivered training courses for RCA, and has trained US NRC inspectors how to evaluate Licensee RCA Reports since 2006.

He has been a member of the IAEA faculty for International courses on Reactor Safety and Management Systems since 2001.



Mr. Swanson holds a masters of business administration in finance from Babson College, a master's degree in engineering management from Northeastern University, and a bachelor's degree in operations analysis and naval science from the US Naval Academy. He served as a commissioned officer in nuclear submarines, and has been a licensed Professional Engineer since 1982.

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