

## Learning from Small Things that Go Wrong – a Vision of What Could Be

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Several years ago, I was confronted by an organization which suggested that the formal Root Cause Analysis (RCA) process could be abbreviated and applied to SMALL problems. Their name for it was the “Mini-RCA.” I had been working with this organization for several years, and their suggestion disturbed me. I rejected their idea, thinking “You can either do an RCA, or not do an RCA. How can an RCA be abbreviated?”

The organization went ahead with their idea, in spite of my criticism. Instead of waiting for significant incidents, area managers began insisting that their people do Mini-RCA’s on smaller problems. Quotas were established to force employees to do many Mini-RCA’s. The results were astounding.

Within one year, hundreds of small incidents had been investigated. The results of these Mini-RCA’s pointed to corporate-level problems in “Project Design and Construction.” The initiative received executive attention, leading to the formation of a high-level task force to address the way new projects were implemented. I became a believer.

Since the original work mentioned above, the notion of a “Mini-RCA” has grown by leaps and bounds. Now, instead of merely looking at things like “Project Design and Construction,” some organizations are beginning to look at their small problems for clues about errant thinking: “what about the way we THINK is causing our problems?” No big teams, no sophisticated science – just plain and simple INTROSPECTION.

This new Mini-RCA concept has tantalized more than a few corporations. The purpose of this paper is to include the reader in the excitement that others are feeling by demonstrating the value of applying RCA concepts to small problems. Several personal examples are

discussed. A suggested Mini-RCA format is reference. Over 40 additional examples are available for review, with tabularized results. The conclusion:

**Small problems are an opportunity for individuals to discover something about themselves. Small problems can reveal problems with the way we think. That’s important, because it’s the way we (all of us) think that causes big problems.**

Big things go wrong because we don’t act on small things.

I experienced an incident on a 10-year-old Ford F-250 pickup truck that could have been disastrous. It was parked in the gravel driveway of our mountain house, but the truck would not start. I knew the battery was okay, so I tried to start it by jumping across the starter-relay with a screwdriver. I carefully connected the positive and negative terminals, and the truck immediately started. But as soon as it



started, it began moving backwards – fast! My wife was with me, and tried to get in the truck to stop it but I pushed her out of the way to keep her from getting hurt. By this time, the truck was going at least 10 miles per hour in reverse, accelerating.

Our driveway traverses a slight ridge on our land, and the truck careened down one side of the driveway heading straight for our well. It missed the well by a few inches and flew down the hill, smashing into a stand of pine trees. The trees stopped the truck, but only after 4 trees were uprooted and the right rear section of the truck demolished.



Both my wife and I could have been seriously injured, but we were



not. In addition, the truck could have backed out into the street endangering another car, but it didn't. If this incident were to have happened in a public parking lot, it could easily have been deadly.

As soon as it happened, I knew why it occurred –hindsight is 20/20. As you read the following paragraphs you'll probably wonder how I could have been so "stupid" – the typical after-the-fact response of the outsider observer. But what you are about to read is precisely the kind of thing that causes "big things to go wrong" – it's one of a million examples that could be used to make the same point: **it does not take a big team and a lot of sophisticated science to learn from small things that go wrong. Even more, what we learn from the small things can prevent the big ones.**

I bought the pickup truck about 3 years before the incident, used. It had an automatic transmission. After I bought it, I noticed that it had a sloppy gear-shift; it was loose, and the "needle" never pointed to the correct gear. It seemed like it was getting slightly worse with time. I asked my wife if she noticed a problem, and she confirmed my observation.



I had to take the truck to the dealer for another issue, so I asked them to look into the loose gearshift and give me a quote on a repair. The next day, they told me it'd cost more than \$500.00 to fix the loose gearshift. They said there were several rusty components that would have to be replaced, and then asked me "is this causing you a real problem or is it only an inconvenience?" Actually, it was only an inconvenience, so I said to myself:

*"No big deal – we'll just live with it."*

About 6 months later I had a problem starting the truck. The battery seemed "dead" – the engine wouldn't "turn-over." I jumped it with my other car and took it to an auto parts store to test the battery. They told me the battery was marginal, so I replaced it. The starting problem was "solved."

About 4 weeks after I had replaced the battery, my wife returned from her weekly shopping with an interesting story. She told me she couldn't start the truck in the parking lot, saying *"the battery seemed to be dead."* I said to myself *"What? How could that be? The truck has a new battery!"* My wife continued by saying that a guy helped her by getting into the truck and doing something with the gearshift. She said, he *"pushed it up and down and up and down – he did it hard, really hard – I thought he was going to break it. But after he abused the gearshift, it started."* I went outside to look at the truck. I was bewildered. I tried to start it – it started just fine. I did not allow my wife to drive the truck for the next few weeks until I could figure out what was wrong. But it never did it again.

*"It must have gone away by itself."*

About 3 weeks after I allowed my wife to drive the truck again, she came home from shopping with yet another story. This time, she was angry with me. *"It happened again – I couldn't start the truck,"* she said. *"I thought you said it was fixed!"* *"Lucky for me,"* she said, *"a truck driver helped me."* He saw her in distress in the parking lot, opened the hood and, according to my wife *"did something with a screwdriver up on top of the engine"* to start the truck. He told her to drive straight home, without stopping and "tell your husband what I did."

Curious about what the truck driver could have done, I went out onto our driveway and opened the hood of the truck – looking for what the truck driver might have done. I immediately saw the starter relay and said to myself *"ahaa, he shorted-across the terminals of the starter relay!"* Then I realized that I probably never had a battery problem – it was probably the starter relay all along.

I tried to start the truck, and it started without me doing anything to the starter-relay! Hmmmm... *"I guess it isn't an all-the-time problem."* I thought *"I'll replace the starter relay as soon as I can."* I told my wife she couldn't drive the truck until I "fixed it."

We live in the mountains, about 45 minutes from any auto parts store. Therefore, in the mean time I

continued to drive the truck. I ended-up putting-off the repair of the starter relay because:

*"I know how to deal with it if it doesn't start again – I'll simply get the screwdriver and short-across the starter relay terminals."*

*"It's good to know how to jury-rig something when something goes wrong."*

*"You can't live up here in the mountains without being good at jury-rigging."*

About 3 weeks after I knew about the starter-relay problem, I tried starting the truck – but it would not start. I was almost glad it wouldn't start – now I could try to restart it by using my screwdriver, just like the truck driver. *"I wish I would have known that neat little trick when this first started happening."* *"Guys like that sure are handy."* *"I wish I was a bit more handy."* *"My wife probably admired that guy for helping her like he did."*

With these thoughts in my mind, I said to myself *"I ought to get my wife and show her how this is done."*

*"She'll probably be impressed that I know as much as that truck driver."*

I called her outside, opened the hood, turned the key to the "on" position (of course, it wouldn't start), then asked my wife to stand next to me at the front of the truck and watch me as I tried to start it.

As I said, it started immediately when I shorted-across the terminals. I was jubilant, even glowing for a split second at my accomplishment – until I saw the truck starting to move. Surprise, then horror were the feelings I had. I thank the Lord no-one was hurt.

As soon as the truck started moving away from us, I knew what had happened. THE GEARSHIFT WAS NOT IN PARK as intended. It was actually in REVERSE (which, of course, is next to PARK)! I also realized, in that split second, that the truck won't start unless the gearshift is in PARK! It was never a battery problem! It was never a starter-relay problem. It was the SLOPPY GEARSHIFT all along! **Big things go wrong because we don't act on small things!**

The underlying causes of SMALL PROBLEMS will cause BIG PROBLEMS if not addressed.

I hope you recognize that everything I'd learned to this point was the result of my lone effort (no big teams), with little or no input from learned scientists (yes, I learned a lot from skilled craftsman, but I didn't have to resort to complex science). But my learning had just begun.

I once owned a Cadillac. I bought it used and kept it for a long time. It had a brake warning light that kept lighting-up. The first time it occurred, I was alarmed. I know enough about cars to know that the light is warning of a potential problem within the hydraulic system of the brakes. I looked into it immediately.

I found that the emergency brake pedal was a little loose – it would not retract all the way when disengaged. Because it would not retract all the way, it was not depressing the light switch. In other words, it wasn't really a problem with the brakes – the hydraulic system was operating as intended. It was a "wear and tear" issue – it was an old Cadillac and there was some "slop" in the brake emergency pedal. Nevertheless, I took it to the dealer and requested that they fix the looseness.

They called and told me the repair would cost over \$750.00, and advised me to just "live with it." After all, there was nothing wrong with the brakes. I followed their advice and did not repair the brake pedal.

*"NO BIG DEAL, I'LL JUST LIVE WITH IT."*  
(sound familiar?)

To counter the problem, I lifted the brake pedal with my foot so that it would depress the switch and turn-off the light every time I started the car – just to make sure I didn't really have a brake problem.

*"Since I'm not going to fix this, I'll check it regularly just to make sure things are safe."*

About 3 years later, I moved my family to the mountains. I sold the Cadillac and bought the Ford F-250 pickup truck that I've already told you about. One day, while my wife was going down the mountain to shop for food, she noticed that the brake light came on in the pickup truck.

My wife, who also drove the old Cadillac before we sold it, was used to seeing the illuminated brake

**Big things go wrong because we don't act on small things.**

warning light. She knew it didn't mean anything in the Cadillac because I had explained it was only a loose emergency brake pedal.

Therefore, when she saw the illuminated light in the Ford F-250, she thought *"I've seen this kind of thing before in the Cadillac – no problem; it's probably just a loose pedal!"* She continued to do her shopping, went to several stores, and finally decided to come home.

She drove up the steep mountain, maneuvered around all the hair-pin turns, and then turned into our driveway. As she applied her brakes to stop the truck, the brake-pedal went to the floor. Horrified, my wife threw the gearshift into neutral, pounded continuously on the brakes, and then sat there feeling totally helpless as the truck coasted towards the house.

The truck came to rest about 6 inches from the foundation of our house.

In retrospect, we learned that the brake-line had ruptured on the way down the mountain. We could see the brake fluid on the road. The brake fluid squirted out of the rupture every time she applied her brakes while shopping. By the time she decided to come home, there was no brake fluid remaining. After-the-fact, my wife remembered thinking that the brakes felt strange, and that the pedal was getting lower and lower to the floor. But it simply did not "sink in" that she really had a problem. If she were going down the mountain when she totally lost her brakes, I might have lost my wife.

Why did the brake line rupture? I found that much of the brake system was corroded – severely corroded. In fact, much of the underside of this truck was corroded. After searching through the records, I found that the truck was the property of a Paper Mill, and had probably been through puddles of corrosive liquids for the first few years of its life.

Now, please think back to the original problem I discussed where the truck was mistakenly started in reverse. If you recall, one of the primary causes of that incident was a loose gear-shift. Up to the time of the incident, I did not know *why* the gearshift was loose. Yes, I remembered the dealer saying something about rust, but I had no idea of its extent.

The same corrosion that ate-through the brake lines was also responsible for the loose gear-shift! **The underlying causes of UNRESOLVED small problems will cause big problems.**

**No big teams, no sophisticated science – just plain and simple introspection.**

The most important "underlying cause" is our THINKING!

In the above example, "corrosion" is only a "surface" example of "underlying cause." It only explains the "physics" of the problem. There is much more "beneath the surface."

### **What are we THINKING when we dismiss a small problem?**

As I've taken you through the various problems I've had with my vehicles, I've made a point to emphasize some of my personal thoughts. **Our thoughts drive our actions!**

Although it's embarrassing, I acknowledge that the following thoughts were at the "root" of all the problems I had encountered with my vehicles:

*No big deal – we'll just live with it.*

*It must have gone away by itself.*

*I'm a guy and I can handle this kind of thing now that I know how to work around it.*

*I know how to deal with it if it doesn't start again – I'll simply get the screwdriver and short-across the starter relay terminals.*

*It's good to know how to jury-rig something when something goes wrong.*

*You can't live up here in the mountains without being good at jury-rigging.*

*She'll probably be impressed that I know as much as that truck driver.*

*Since I'm not going to fix this, I'll stay on top of it just to make sure things are safe.*

The most significant facet of something that went wrong is the part that pertains to ourselves. Our small problems can answer the question: "what about the way I am contributed to this problem?"

We can learn about the kind of person we are by acknowledging the THOUGHTS we had during an incident. Our THOUGHTS cause our problems!

In fact, that's one of the main points of this paper – if we intentionally look back (after a problem) and acknowledge what our thoughts had been, and if we acknowledge these thoughts every time we have a problem, eventually a **“eureka” will occur within the mind of the inquirer** -- the epiphany many of us feel when all of a sudden something makes sense. Most people will not have this epiphany the first time they acknowledge their thoughts, but most will gradually understand the harm their thoughts are causing if they are continuously and sincerely introspective.

**No big teams, no sophisticated science – just plain and simple introspection.**

An organization ought to be introspective.

Just as I've tried to demonstrate by using myself as an example, an organization can decide to acknowledge how “the way it thinks” results in incidents. Of course, this will not happen automatically. It will require dedication, energy, and time. It also requires an investigative process that intentionally focuses on the thoughts of the involved people.

I've become so convinced of the importance of this that my primary business objective over the last 10 years has been to help people confront problems within “the way they think.” Please do not misunderstand; it's not that I know “how to think,” and therefore try to get others to think as I do – no! As I've pointed-out, I have problems within the way I think also – we all do. It's our problems themselves that are capable of prying us out of the “wrong” way of thinking, if we are willing to let them. Whether investigating a catastrophe or a small problem, either at home or at work, it is vitally important to understand the THINKING that contributed to the problem.

In fact, it can become a habit. Eventually, the person (or organization) that continually seeks to understand the thoughts that lead to its mishaps will start doing it automatically – continuously

improving the root of our problems, one day at a time.

### The Maxi, Midi and Mini-RCA

To help an organization be “introspective,” it's important get everyone involved. One way of getting everyone involved is to use the “vehicle” of Root Cause Analysis – not merely the formal, team-based exercises that most people are already doing, but a variety of RCA-type exercises that everyone is expected to do. One such strategy is to delineate 3 types of Root Cause Analyses:

Maxi-RCA's  
Midi-RCA's  
Mini-RCA's

Maxi-RCA's are performed on large work-related problems, always involve a large team of stakeholders, and usually require sophisticated science. Midi-RCA's are performed on smaller work-related problems, do NOT involve large teams, and seldom require sophisticated science. Mini-RCA's are performed on HOME problems by household members, and rarely require complex science or big teams.

**If your RCA's are not focused on the THINKING that contributed to the incident, you shouldn't be calling them RCA's!**

**The essence of ALL three types of RCA's is INTROSPECTION**, whether it is a Maxi-RCA (Space Shuttle Explosion), Midi-RCA (pump failure), or Mini-RCA (automobile incident). In other words, **each of these forms of RCA's require the inquirer to probe the THINKING that contributed to the problem.**

### How Often Should You Do these RCA's?

If you want to help your organization develop the habit of being introspective, you'll have to prod people to do many RCA's. In general, Maxi-RCA's should be performed about 3 times per year at each site. If you're not doing at least 3 per year, lower your investigative trigger-points. If you're doing more than 3 per year, raise the trigger-points. Since these investigations consume a lot of time and resource, they should only be used sparingly.

Of course, we don't want Maxi-Events! (We'll do Maxi-RCA's on small events if necessary so we can learn from them, but we certainly do not want to have Maxi-Events). We'd rather learn from smaller events.

Midi-RCA's are performed on smaller events. They are not as time consuming and do not require a team. True, they are not as precise – some errors are likely. But since we're going to do so many, the volume of data will compensate for the lack of individual accuracy.

Everyone is supposed to do Midi-RCA's – at least one Midi-RCA per quarter – from the Site Manager to the janitor. If your site has 100 people, you'd be generating  $100 \times 3 = 300$  Midi-RCA's per year. Imagine 300 independent data points focusing on the thinking that causes your problems.

Mini-RCA's are just the same as Midi-RCA's, but Mini's are done on home problems while Midi's are done on work problems. Obviously, you cannot force people to do Mini-RCA's. But if you foster this habit at work most people will bring it home (just like safety). Everyone ought to be doing Mini-RCA's on every problem that occurs at home. Eventually, Mini-RCA's are done "in the head." They're easy when you get into the habit of doing them.

Doing Mini-RCA's is the most effective way of seeing problems in our thinking. Since they are done in private (at home), they are totally non-threatening and yet, as I've tried to show by using myself as an example, can be personally revealing.

#### 40 Actual Examples of Mini and Midi-RCA's

Over the past few years, I've accumulated about 150 Mini and Midi-RCA's that my classroom attendees have sent to me – from many different industries and organizational strata. About half of them were performed on home problems, and the other half on work-related problems. **Within these 150 RCA's is a common thread of thinking that causes the majority of our problems.**

In doing research for this paper, I randomly chose 20 home problems, and 20 work problems – 40 problems in total. All of these problems were "investigated" by only one person; all were considered to be "small" by the investigator. A full summary of all 40 problems is available by downloading the following Excel file at <http://snipurl.com/miniRCA40>. The Mini-RCA template that was used to generate these

results is available by downloading the PDF file at <http://snipurl.com/8d6j>.

In each of the 40 cases, the following facets of the problem were revealed:

1. **Problem:** what happened.
2. **Physical Cause(s):** describes the "physics" of the problem and answers the question "HOW did the problem occur?"
3. **Human Causes(s):** specifies precisely what people did that allowed the physical causes to exist and answers the question "Who did What?" (no names)
4. **Thought(s):** what were the involved people THINKING when they "did" the Human Cause? What ACTUAL WORDS were running-through the people's minds?
5. **Latent Cause(s):** what about the way you do business contributed to this incident?
6. **Bottom-line learning:** after reflecting on what you've learned, what is the "moral of the story?"

**No big teams. No complex science. Just plain and simple introspection.**

#### How to Define the Common Thread of Problematic Thinking

The 40 example problems have a common thread of problematic thinking. To demonstrate how to define this common thread, imagine that you are the site-sponsor of the RCA process. As this sponsor, all results of Maxi and Midi-RCA's should be sent to you.

As the site-sponsor, you should be looking for the "common thread" of problematic thinking within the organization twice per year, as evidenced from the gathered RCA's. Pretend that the 40 example-problems I've mentioned in the preceding paragraphs occurred at your site within a 6 month period. Your objective is to find a common thread of thinking that lead to most of the problems.

This common thread of problematic thinking should be surprising, revealing, and even shocking. After all, you'll have narrowed-down the causes of most of your problems to one or two prevalent thoughts (attitudes, beliefs, or assumptions). Expect people to challenge, and even refute your findings. They'll think "how can all our problems be traced to one or two errant thoughts?" and "what's wrong with that thinking – we've always thought like that?" But the organization or person that is willing to grow will eventually acknowledge that most of their problems originate from a small number of errant thoughts.

Nevertheless, it's difficult to draw conclusions from many Midi (or Mini)-RCA's – as in the 40 I've included here; you have to immerse yourself in the data until a pattern is discovered.

Pattern recognition occurs in the right-brain, and cannot be forced – it takes time. It might take a few hours, or even days or weeks of reviewing the Midi-RCA's. Eventually, however, the inquirer will see a common thread – an addressable thought (attitude, belief, assumption about life) that is causing most of the problems. The feeling is almost one of “enlightenment,” or EUREKA.

But pattern recognition is highly dependent upon internal personal bias – two people might not see the same pattern! It's not that any particular perspective is “right or wrong” – it's rather like the blind men feeling a particular part of an elephant, each of them thinking they know what the elephant is like by only considering their limited perspective. It's only when ALL perspectives are considered that a valid view emerges.

Therefore, it is highly advisable for whoever gathers this information to send-it-out to at least 3 independent people – each with the instruction of finding the common thread of thinking that contributed to most of the problems. If it were me, I'd send my data to the following types of people:

- Someone inside the site (can be the central gatherer)
- Someone outside the site, but within the organization
- Someone outside the organization.

Even more, since this pattern-recognition exercise is to be performed twice per year, don't ask the same three people to review the data each time. The intent is to avoid bias, as well as to assure that you're seeing the “whole elephant.”

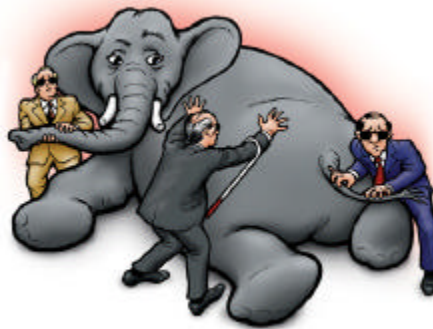
Do not fall into the trap of trying to slot your findings into pre-determined categories! You are likely to miss the most important thread because it might not be on the pre-determined

list. Asides, such pre-determined categories thwart the discovery process, and one of the most important stimulants for change is surprise. Imagine the suspense as you await the findings of your 3 independent people! Compare this to the boredom of looking at the same pre-determined categories of causes month after month, year after year.

On the other hand, the 3 independent people should try to categorize as they are looking at the information. However, instead of using pre-determined categories they should develop their own categories as they look at the data – starting with an open mind and letting the data “speak for itself.”

### Three Independent Viewpoints

To demonstrate this approach to identifying a common thread, I sent the 40 example-problems to 7 independent volunteers from a variety of industries with the following instructions:



*“If these 40 incidents happened at your site, what would you say are the three most significant common threads? I would rather not use any pre-existing categories for this exercise.”*

I did not ask the volunteers to focus on problematic thinking because I was not sure they'd understand my request. I also did not tell the volunteers where

these problems occurred – as a result, most assumed the work-related problems were from one site, and the home-related problems were from one person. As stated above, however, these were 40 different problems from 40 different people from many different businesses and homes. The feedback from the volunteers was astounding, since each of them saw common threads amongst this vast array of problems.

After reading what they said, I gathered the volunteers comment into three categories.

### **Comments pertaining to work versus home issues**

*We have the same problems at work that we do at home!*

*The home related problems seemed to be all about people. Actually, both of them look like the root lies with people.*

*In very home-related case, listed latent causes were deficiencies of the individual involved. In every work-related case, listed latent causes were NOT deficiencies of the individual involved. Rather the individuals pointed to management deficiencies.*

*I am quite astonished on the differences between work and home. I can relate to the comments about both home and work problems, and I am puzzled why they (and I) look at problems different between home and work – astonished would be a better word for it. I am willing to see myself as part of the problem at home, but not at work! You can bet this will be rattling around in my brain for a few days!*

*I like this “home” individual. I recognize a lot of my own errors in this list. I can imagine all the mistakes he won’t make in the future because of what he learned from these typical lessons of life.*

### **Comments about the “common thread”**

*I think the true common thread has to do with management attitude. It looks like management is trying to squeeze too much work out of too few people. It seems like there is immense pressure to keep the “line” rolling. There are probably too many e-mails, newsletters, memos, etc. emphasizing the sheer number of trucks filled or widgets made or whatever their business is.*

*There is a sense of “get it done – I don’t care how – just don’t show ops.” I note a perception that a lot of negative reinforcement is given when operations is slowed, whether that be for an outage, checklist usage, taking more time to do things safely, etc. Upper management may be talking safety and quality, but mid management is not getting positively reinforced for anything but production and*

*immediate profit margin. Also, there seems to be a lack of engineering eyes, ears, and input – both for design and especially for sound on-shift engineering.*

*Finally, I wonder if the first-line supervisors are supervising, e.g., good communication, observing work, checking at least a random sample of completed procedures, etc? Or is everybody so busy that the supervisors either aren’t on the floor or are pitching in to get the jobs done.*

*There were over a half-dozen person-induced equipment failures. With minor exceptions, people appear not to be lazy, but pushed into their shortcuts. Obviously, the times when things went wrong were not the first times that people took these shortcuts. They found (thought-of) them too quickly from the “thoughts” and “latent causes” write-ups.*

*There’s a reactionary response to problems – problems show up and then they are discussed. The employees are the “walking dead.” They see no greater horizon other than their humdrum existence of going through the boring routines of work. There is no thirst for more efficient existence. The company does not want to spend money on the tools to create an efficient and low cost organization. On the other hand, I get depressed just reading the list of problems because for every one thing that has gone wrong there are probably 10 that have gone right. Why focus so much on problems?*

*They tend to ignore things until they’re a crisis. They’re “too busy.” They don’t want to see warning signs. They don’t communicate effectively.*

*Home problems seem to be primarily time-related. There’s not enough time to do things right the first time and there’s no time to fix problems created by making everything a rush job. This becomes a vicious circle that might end once the car blows up and the condo burns down or floods.*

*They’re too busy to deal with small things. They also make wrong assumptions, and in some cases have obsolete, lacking, or by-passing procedures.*

*In general, I saw people taking shortcuts without considering the ramifications. There were some that I would possibly consider design flaws with the equipment and should not be attributed to operator error. You are just asking for failures if the operator is required to be vigilant to avoid errors.*

## **I can imagine all the mistakes he won’t make in the future because of what he learned from these typical lessons of life.**

*Risk evaluation is not being carried-out – it’s not part of the culture. Also, either many pieces of equipment are being operated outside their design envelope, or the design unsuitable. Finally, I see an “it’s them and us” attitude instead of one focused team.*

*I see apathy due to long association in many of the home problems.*

*Looking for a common thread underlying most of the individual behaviors, ..... it would suggest that it is the “belief” system of the individuals involved – they believed what they were doing was OK. They needed to be persuaded otherwise. Also, .....I sense inadequacies in attention, knowledge, and incentive. In terms of skill-based, rule-based, and knowledge-based errors, it seems to me that knowledge-based errors were dominant.*

### What should you do with the 3 Independent Viewpoints?

Now that you’ve received feedback from the 3 independent persons as I’ve simulated above, don’t make the mistake of drawing conclusions on your own. Assuming that you are the person receiving this information, and remembering that this exercise is

supposed to be done twice per year, I'd strongly suggest doing the following:

Gather an influential cross-section of your organization, including all of upper-management and representatives from operations, maintenance, technical and office-support – both union and non-union employees. My experience suggests that between 20 to 30 people should attend this 1-day session.

note: the session should be conducted in the PM of the first day and AM of the second day to permit an evening of reflection.

PM of the 1<sup>st</sup> day

1. Present a brief summary of your Midi and Maxi-RCA's accumulated in the past 6 months. Be brief – do not let the audience get bogged-down in re-analyzing the problems. I'd suggest using a spreadsheet format similar to the one I've included (attachment 1).
2. Present the feedback from the 3 Independent Reviewers.
3. Separate the cross-section into at least 4 "teams." Each team is to be a representative cross-section of the organization.
4. Ask each team to define the "Most Significant Common Thread" by considering results from the 3 Independent Reviewers. Although there will be many issues revealed by the reviewers, it is important to focus on ONE common thread.
5. After discussing each team's results, either achieve consensus on the best "Most Significant Common Thread" statement, or vote for the best one.

AM of the 2<sup>nd</sup> day

1. Ask for overnight thoughts.
2. Once again, separate the cross-section into at least 4 different "teams." Remember to assure that each is a representative cross-section.
3. With the ONE Most Significant Common Thread in mind, ask each team to define the AS-DESIRED STATE for that thread. For example, if the common thread is:

*Management is trying to squeeze too much work out of too few people,*

then each of the 3 teams would have to consider what the state SHOULD be. Everyone on each team must agree with the statement – a challenging exercise, since each team is a cross-section of the organization!

4. Discuss and post each team's results for everyone to view.
5. Divide once more into the same 4 teams.
6. Ask 2 of the teams to identify DRIVING FORCES, i.e. forces which currently exist that are driving you in the AS-DESIRED direction. After they list all they can find, ask them to circle the 3 largest DRIVING FORCES.
7. As the other 2 teams to identify RESTRAINING FORCES, i.e., forces which currently exist that are keeping you from attaining the AS-DESIRED state. After they list all they can find, ask them to circle the 3 largest RESTRAINING FORCES.
8. Review the results from each team. Agree on the 3 largest DRIVING and RESTRAINING forces from the combined results.
9. Divide into the 4 teams one more time. Ask each team to consider the Driving and Restraining forces, and to generate 3 WE MUST Statements that would ensure movement to the AS-DESIRED direction. The WE MUST statements must be as specific as possible, actionable, and measurable. Everyone on each team must agree with the WE MUST statements.
10. Review the results from each team, then narrow the 12 WE MUST Statements (3 per team) down to 3.
11. Make sure assignments are made to assure action on the 3 WE MUST Statements.

Although the suggested meeting format might seem cumbersome, it is much more difficult to describe than to fulfill, and certainly generates the discussion necessary to achieve progress.

#### In conclusion

I've tried to take you on a journey in this paper – a journey starting with myself, trying to show how useful it can be to look at the smaller problems in our lives. Big things go wrong because we don't act on small things. We allow small things to exist – we think they don't matter. It's our THINKING that

### **Gather an influential cross-section of your organization and DO SOMETHING about your THINKING**

causes our problems. It's vital to acknowledge and correct these errant thoughts.

Once I demonstrated this by using myself as an example, I suggested that organizations could do the same thing. These days, most (if not all) high-risk businesses are doing RCA's in one form or another. If these RCA efforts were expanded to include small problems, and if all RCA's intentionally pinpointed the THOUGHTS underlying our problems, we could overtly address a substantially-deep cause of our problems, instead of merely chasing symptoms.

I gave specific guidance about how to make use of the Midi-RCA by suggesting that every person in an organization perform at least one Midi-RCA per quarter – and that the results of these RCA's be sent to the site sponsor of the RCA process. Twice per year, this site sponsor is to accumulate findings, then send them to 3 Independent Reviewers with instructions to look for a common thread.

When the results of the reviews are obtained, I suggested assembling an influential cross-section of the organization to act on these findings. This cross-sectional meeting will be challenging to say the least, but decisive if focused on the common thread.

As our society continues to advance, getting closer and closer to the edge in almost every facet of life, our Root Cause endeavors must probe deeper and deeper. Whereas it once focused primarily on the physics of our problems, it has become imperative to understand “why people do what they do.” At the root of human behavior is our “thoughts.”

We should be treating our smaller problems as harbingers of big ones and ask “what thinking allows small problems to exist?” It is much easier, and relatively non-threatening to ask this question at home. Whether we do this at home or at work, our small problems are uniquely able to heal our thoughts before they cause big problems, if we are willing to be introspective.

## Are you willing to be introspective?

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**Further Reference:** please visit [www.fail-safe-network.com](http://www.fail-safe-network.com) for many other papers, presentations, and links.