



Presented by:

 **KEELEY SAFE**

+


THINK
TANK





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THE GOAL



Risk is defined as the degree of uncertainty of achieving an expected outcome. The purpose of this guidebook is to reduce risk, bring our **#KeeleySafe** philosophy to life, prevent incidents, and help achieve & maintain our goal of **ZERO**.

Our T² Method is developed from three fundamental principles:

1. **Act Defensively**
2. **Enhance Procedures**
3. **Strengthen Resilience**



The examples in this guidebook focus on the construction and utility industries, but all concepts are applicable for any other company or industry.

- An error is an involuntary deviation from a planned action.
- Incidents can be a result of personal error, but they are often caused by a combination of weak procedures, miscalculations, and situational hazards.
- The Keeley T² Method is a collection of research-based processes and our **#KeeleySafe** culture built on **ZERO**.



CULTURE BUILT ON ZERO



STEPS TO DRIVE ZERO

- Pre and Post-Trip Vehicle Inspections
- Daily Pre-Task Safety Analysis
- Weekly Safety meetings
- Field Safety coordinators
- Safety Champions advanced engagement
- “Safety Flash” instant reports
- Good Catch Initiative and reporting
- TSR’s

Online LMS that can be accessed by the QR code



Do the right thing. Our greatest accomplishment is each team member arriving home safe every night.

-Ray Boehm (Safety Ray)
Vice President of Risk Management

COMMUNICATING WITH KEELEY’S

- Weekly/bi-weekly Safety Conference Calls
- Weekly Toolbox Safety Talks
- Daily Pre-Task Safety Analysis
- Field Safety Coordinators
- Supervisor Safety Shorts
- Empowered to Own Your Safety
- Face 2 Face conversations

Safety Video Playlist that can be accessed by the QR code



AWKWARD MOMENTS with Safety Ray
Hi, Safety Ray here.

Keeley Tip

When asked “Why do you choose to be #KeeleySafe?” it’s clear that everyone has an important reason why safety should be the utmost priority. Team members proudly wear their “My Why Badge” and every office has a “My Why” board. These serve as a constant reminder of why we choose to be #KeeleySafe every day.



CHECKLIST



GOAL

The goal of a checklist is to eliminate potential human error by providing step-by-step guidelines to a complex process in which certain steps could be overlooked from memory.

IN ACTION

Checklists have become a mandatory tool for most operations and at Keeley Companies, we enforce the uses of checklists before starting work to ensure safety and reduce human error. Checklists reduce decision fatigue by not forcing us to perform every step from memory.



Keeley Tip

In 1935, a deadly airplane crash occurred moments after takeoff that changed the future of aviation and many processes. Imperative steps were missed during flight preparation, thus resulting in the checklist process to eliminate these future errors.



TASK ANALYSIS



In addition to the JSA, the following pre-tasking questions should also be discussed before work begins to set your crew up for success.

1. Are the critical steps for your safety typically discussed in the JSA?
2. What is the one thing that can most impact your safety today?
3. What steps are you and your crew taking today to ensure you go home safely?
4. How does the Mission statement or Core Values relate to the topic today?
5. Recent Good Catch reports? What was done to prevent the negative occurrence?
6. Recent Near Miss reports? Were we lucky or proactive?
7. Recent Events (Injury/Illness, Motor Vehicle Incidents, Utility Hits)?
8. Recent company or customer safety bulletins?

Keeley Tip

Following these simple techniques can set up you and your crew for success. The JSA (page 9) is the best planning tool you have for your safety. Use it effectively and Stay #KeeleySafe.



1. The initial message is stated.
2. The individual receiving the message repeats the message back to the individual who made the statement.
3. The sender of the message verifies that the message was correctly received or stops and makes necessary corrections.

EXAMPLE:

Ray: *"I am preparing to lift the load."*

Layne: *"I am ready for you to lift the load."*

Ray: *"Lifting the load."*

Keeley Tip

If necessary, use phrases such as "stand by" or "hold please." Avoid words like "OK" and "Right" because their meaning may be misconstrued.



THE “ALL IN” STEP



An “ALL IN” step is an action that cannot be undone, such as detonating an explosive or sending energy to a circuit. All of your preparations should be in place once you reach this step, and you should be “ALL IN” to move forward. Always use clear and concise communication before performing an irreversible step. The callout dedicated to each irreversible step should not be overused to the point where it becomes ignored.

“CLEAR!”

“TURNING POWER ON”

Keeley Tip

- Use a short, effective phrase that is specific to the action being performed.
- Train all team members to expect these callouts every time the task is being performed, so that they remind you if a callout is missed.
- Have team members provide feedback and suggestions on which irreversible steps need specific callouts.
- Pause after using the callout to allow for anyone to tell you to wait.
- Even if you are working alone, it's imperative to develop these callouts into habit.



LIVE VS. LATENT ERRORS



LIVE ERRORS

Live Errors are those that appear immediately as the mistake is made. Consequences are easily identified from present errors and can be connected to future errors that may still be unknown.

Examples -

- Backing into a wall without a spotter.
- Hitting a utility line during drilling.

LATENT ERRORS

Latent Errors are those that may not present themselves until a significant amount of time has past and projects have been completed. The cause and effect of these errors are unrelated, so at the time of occurrence, people are not aware they've made the error at all.

Examples -

- Leakage due to incorrect materials that isn't discovered until heavy rain occurs.
- Failure to recognize the hazard with overhead lines
- Nonsecure reels on trailers that allows for opportunity for a reel to fall off.

Keeley Tip

All team members are empowered to call out any errors and to think towards the future to address and avoid possible Latent Errors. Utilizing proactive learning teams to identify Latent Errors will strengthen the organization and reduce the probability of error.



+/ Δ Analysis



DEFINED

Keeley Companies is focused on building a culture of +/ Δ to allow for continual improvement. A +/ Δ Analysis is an open discussion that takes place after work has been completed. The purpose is to focus the +’s; what went well, and the Δ ’s; the opportunities for improvement. Creating a habit of +/ Δ Analysis fosters a culture of continual growth where discussion is more than just reactionary.

IN ACTION

When work is finished, and the jobsite is safe, gather team members and discuss the following questions:

1. What was the goal set to achieve today on this jobsite?
2. What went well during the job?
3. Was that goal achieved? If not, what happened instead?
4. What were the roadblocks?
5. How will we overcome these roadblocks next time?

Keeley Tip

Do Not..

- Do not skip questions.
- Do not blame or allow others to blame.

Do...

- Do let the team do most of the talking.
- Make sure to cover safety, quality, and communication.





HINDSIGHT BIAS

During an incident analysis, information has been gathered, photos have been taken, and alternative outcomes have been established. It's easy to let this knowledge effect your judgement. To overcome a Hindsight Bias, remember that when the incident was taking place this information was unknown and team members may have been affected by situational conditions.

SOLUTION

1. Remind yourself that you can't predict the future.
2. Examine the data.
3. Record your thought process.
4. Consider alternative outcomes.
5. Make your decision.
6. Analyze the outcome.



OUTCOME BIAS

This bias can occur when multiple team members experience the same incident, but one is treated differently because of his particular outcome.

SOLUTION

In order to prevent this bias, focus on the actions that were within someone's control, not the results that could not be controlled.





COGNITIVE DISSONANCE



DEFINED

The state of having inconsistent thoughts, beliefs, or attitudes, especially as relating to behavioral decisions and attitude change.

EXAMPLES

- Jimmy smokes every single day, despite being educated on the negative health impacts.
- We committed to placing a certain number of miles of fiber today, but we encountered a roadblock. In order to safely proceed the initial deadlines cannot be met.
- A trusted and respected Foreman has been with us for over a decade but has consistently violated multiple safety procedures in order to get the job done.

POPULAR CHOICE

Often people will make the choice that is within their comfort zone and defend that choice at all costs. They are comfortable denying the opposing choice until the conflict dissipates.

IDEAL CHOICE

Take the time to understand your conflict between both choices. Find a trusted mentor or coworker who isn't experiencing the same dissonance to discuss your thoughts with. Focus on finding the right solution and expanding your point of view.

Keeley Tip

In order to protect you from potential cognitive dissonance, Keeley Companies enforces a strict no-cell phone policy while operating a vehicle.

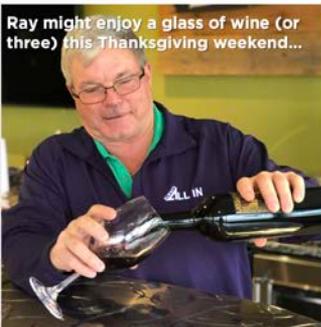
ASK YOURSELF - WHAT WOULD RAY DO?

At Keeley Companies, our goal of ZERO is only attainable through defensive driving and safe habits while behind the wheel. Our very own Safety Ray embodies this goal every day.

EXAMPLE

Distracted driving is anything that takes your attention away from the road. These distractions could be visual, such as reading a text message; manual, like reaching for an item in your backseat; or mindful, such as arguing or daydreaming. So before you answer that text, adjust the radio, or reach for something behind you, think to yourself; What Would Ray Do?

Distracted driving is a top area of focus for #KeeleySafe. In order to remind Keeley'ns to stay safe, a WWRD series is sent out on a quarterly basis, focusing on different potential distractions or related to our safety theme.





To ensure safety on every jobsite, it is crucial to explain and ensure all team members understand both verbal and nonverbal cues (such as a fist signaling stop) that will be used during the project and establish specific communication throughout all phases of a project. If there are new team members joining you, quiz them to see how their common terms, phrases, and gestures differ from yours. All team members should provide input and agree on the set of terms, phrase, and communication methods that will be most commonly used.

EXAMPLE

Before reversing his truck, a foreman from ADB establishes the communication and signals he'll be using with his spotter so both Keeley'ns remain safe and no incidents occur.





Defensive designs proactively create systems to help eliminate the possibility for human error.

EXAMPLES

- ADB has worked with a partner manufacturer to redesign custom Reel Trailers with the intent of eliminating possible human error by incorporating automatic controls and safeguards.
- To protect team members in the maintenance shops, a hydraulic lift system was developed and installed in order to replace the need for hand jacks when lifting trucks and equipment.
- At ADB, Keeley's under 90 days are required to wear blue hard hats to signify they are still learning.
- All Keeley Companies enforce fall protection measures as well as maintaining 3 points of contact at all times.





ERROR MULTIPLIERS



Certain situational conditions can increase the likelihood of errors or make them worse. These conditions are usually objective and produce a “yes” or “no” answer.

- Is the equipment or process new to you?
- Is your focus somewhere else, from stress or fatigue?
- Are there outside distractions?
- Are you tempted to multitask?
- Are you provided with adequate and current resources?
- Are your tools and equipment damaged or in less-than-perfect condition?
- Is there any unclear instruction surrounding the task at hand?
- Are there new team members working with you?
- Is the task beginning to become repetitive?
- Are there irreversible steps in which errors could result in injury or death?
- Is there any discord among team members working on the project?

Keeley Tip

If you answer yes to any of these conditional questions, do not proceed – Stop & Rethink.



TWO TYPES OF DECISION-MAKING

SNAP JUDGEMENT

- Quick
- Without thought
- Based on principles and gut reactions
- Often result in error
- Decision process can't be explained or written down

METHODICAL REASONING

- Deliberate
- Well thought-out
- Based on established processes
- Unrealistic in most situations
- Easy to explain the steps leading to the decision

APPROACHES

1. Make judgements on a case-by-case basis, considering the cause and effect.
2. Understand that both methods are widely used by experts and leaders and there is a time and place for both.
3. Develop professional decision-making by using realistic examples and case studies.



Keeley Tip

If your errors are frequently caused by Snap Judgement - Stop and Rethink



DEFINED

Emotional Intelligence is defined as the capacity to be aware of, control, express one's emotions, and to handle interpersonal relationships judiciously and empathetically.

IN THE DECISION-MAKING PROCESS

1. Start with the Desired Outcome
 - The point of making a decision is to achieve a certain outcome.
2. Rely on Data and Insights to Spot Patterns
3. Use S.W.O.T. Analysis
 - S.W.O.T. analysis stands for strengths, weaknesses, opportunities, and threats.
4. Simulate the Outcomes
5. Trust Your Instincts
6. Identify Your Cognitive Biases
 - Becoming aware of your own biases is a big step toward making better decisions about your career or business.

Based on the assumption that human error will naturally occur, fail-safes are actions taken and designs made with the intent to reduce the impact of inevitable errors.

FAIL-SAFE DESIGN

- Modern “Ground Fault Circuit Interrupter” (GFCI) outlets detect faults, then cut power in milliseconds before you get electrocuted.
- A trench box that is created in order to protect individuals within the trench should the trench collapse.

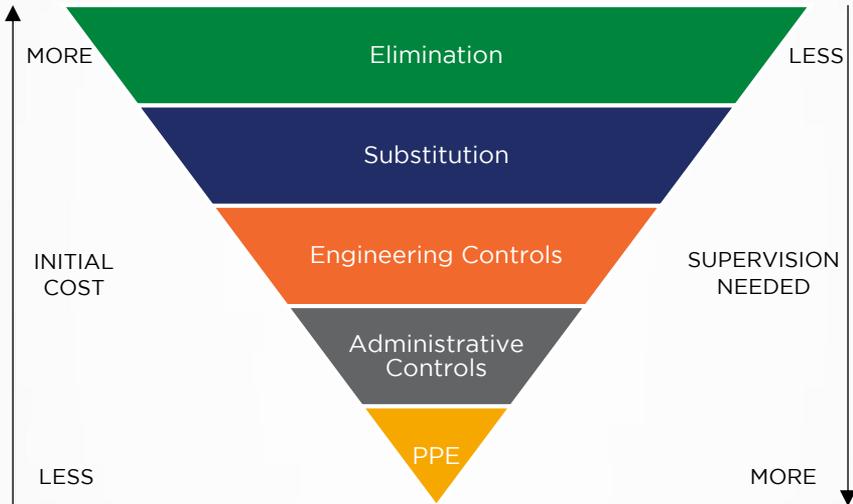
FAIL-SAFE ACTIONS

- Multiple Points of Connection used in Fall Protection Practices.
- Wearing a seatbelt when operating a motorized vehicle.





HAZARD CONTROL LEVELS



EXAMPLES

- **Elimination** – moving to the other side of the road while boring.
- **Substitution** – A hydraulic lift system was installed to replace the need for hand jacks.
- **Engineering Control** – Wear ice cleats instead of “trying not to slip.”
- **Administrative Control** – Use clear warning labels.
- **PPE** – Always wear your hard hat, safety vest, and safety glasses.



PEER REVIEW



Confirm actions with team members that you trust and will challenge you. Having a peer that you trust to review your work will hold you accountable as well as reduce potential errors. Refer to the +/Δ Analysis to hold each other accountable and cultivate continual growth.

Keeley Tip

Do Not..

- Choose a team member who is unwilling to provide constructive feedback.
- Fully rely on team member confirmation.

Do...

- Explain what your about to do and clarify what needs to be checked.
- Give your team member time, giving a deadline if needed.





MODES OF OPERATION



The way you operate or perform your duties can be defined by three different modes.

IMPROVISATION MODE

A new team member begins a task without proper instruction or guidance, figuring it out as they go along.

PROCEDURE MODE

A team member has been trained and performs a task through step-by-step procedure, sometimes making errors because incorrect assumptions are made.

HABIT MODE

An experienced team member performs work with minimal conscious thought, reciting well-practice habits. This mode can lead to error through inattention, when changes in condition go unnoticed.

Improv

Errors 1:2 from inaccurate mental models

Procedure

Errors 1:1,000 from misinterpretation

Habit

Errors 1:10,000 from inattention



PERSONAL VS. ORGANIZATIONAL



When errors occur, they are usually viewed in one of two ways:

Personal or **Organizational**.

The **personal** view is when we assume the person is at fault for the error.

The **organizational** view is where the organization and systems involved are viewed as a whole and considered as reasons for possible error.



	Personal	Organizational
When considering errors:	The person is at fault due to laziness or complacency	The errors show us improvements that need to be made to the system
After an error:	Who is responsible?	How did it happen?
Humans are:	The cause of most errors	Our best defense
Policies & Procedures:	Errors wouldn't happen if people followed procedure	Expert operators have skill ahead of policies.
Corrective Actions:	Discipline the person and provide more training	Adjust the system to recognize and reduce error
After an incident:	Find one true cause	Identify all possible causes



DEFINED

Situational Awareness is the perception of environmental elements and events with respect to time or space, the comprehension of their meaning, and the projection of their future status.

IN ACTION

Being fully aware of your situation involves scanning the environment and focusing on specific items of interest. Since humans are unable to perform both actions simultaneously, coordinate between yourself and a team member who will scan and who will focus.

- While scanning, train your eyes to notice anything out of the ordinary, while not dwelling on any single item.
- While focusing, direct your attention to one specific detail of interest and assess whether it should be ignored, avoided, or addressed.

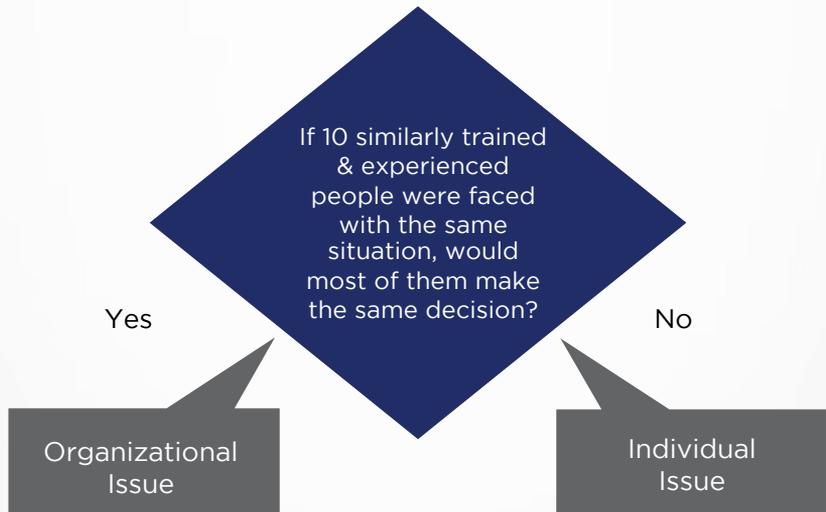
Keeley Tip

Trade roles with your team member regularly. If working alone, alternate between scanning and focusing so both receive your full attention.



Emily, a Tower Technician, inspects an older telephone tower and decides it's safe to climb. As she nears the top, the tower starts to feel less stable. After analyzing the situation, it is revealed that there are parts of the tower beginning to wear down. Was Emily's decision reasonable?

For a question like this, apply this **Reversed Situation Test**:



Always ask what people actually would do in a given situation. If confidence is low in your decision, take the time to ask other individuals what they would do in this situation.



The #KeeleySafe culture is founded on empowerment. All team members, regardless of position or title, are empowered to stop work if something is perceived unsafe or they do not understand.



Keeley Tip

Do Not..

- Do not assume that the person with more experience is always right.
- Do not follow instruction or a procedure if you are unsure why you are doing it.

Do...

- Do focus on what is right, not who is right.
- Do respect the courage it takes for team members to ask questions and ask for help.
- Do stop when unsure.

WHAT MAKES KEELEY COMPANIES A HIGHLY RELIABLE ORGANIZATION?

- At Keeley Companies, our #KeeleySafe culture fosters safety celebration. Keeley Companies celebrates moments of risk prevention and empowers individuals to call out unsafe acts.
- We understand that we are going to fail, and our motto is Fail Fast, Fail Often, Fail Forward.
- Our people are our most important asset and these safety measures are how we ensure every Keeley'n makes it home to their family at the end of every day.
- Providing continuous education at all levels of the organization and our comprehensive safety communication strategy continue to drive continuous growth and improvement throughout Keeley Companies.
- The #KeeleyWay is how we achieve our results on purpose and reach our #KeeleySafe goals.
- Keeley Companies is constantly looking to evolve our safety culture and take it to the next level.





ADDITIONAL RESOURCES



For more information on the T² Method or #KeeleySafe, please contact any member of the Risk Team or Ray Boehm, Senior VP of Risk Management.

Ray Boehm
Senior VP of Risk Management
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All Keeley's are encouraged to attend our regularly scheduled safety meetings -

L. Keeley The last Tuesday of the month
ADB Tuesdays - ADB OSP East
 Wednesdays - ADB OSP West
 Thursdays - ADB Office
Mercury Mondays

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For video content and training resources please visit the KeeleyU LMS and check out the Keeley Companies YouTube channel.