Injury Root Cause Analysis (RCA) The Do's & Don'ts

CORD SEMOTINK – SAFETY, SECURITY, AND RISK PROFESSIONAL
SARGENTO (HILBERT PLANT)

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Background

- Originally from the Iron Range (northern Minnesota)
- 15 years of experience
  - Mechanical engineer (4 years)
  - Construction/maintenance planner (3 years)
  - HSE professional (8 years)
- Previous worked in mining industry (taconite & lime)
- Have completed over 50 RCA's
- Wife, two daughters, and a goldendoodle
  - A house divided!

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All About Sargento

- 70+ year old, private, family-owed company
- 2500+ employees
- 5 locations
- Products include:
  - Balanced Breaks
  - Slice
  - Shreds
  - String Cheese (Baker)

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A little Foreshadowing???....

=

(this is not a strawberry, FYI)

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What is a Root Cause Analysis

- a structured investigation process used to identify the underlying, systemic reasons why an injury or near-miss occurred, moving beyond blaming individuals to prevent future recurrences. It focuses on identifying system failures—such as inadequate training, poor maintenance, or flawed procedures—by asking "why" repeatedly, ensuring permanent solutions are implemented.

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The Case for a Change

- Not asking the right questions
- No ownership at the plant level
- Lack of employee engagement
- **Did not have a defined RCA process**
  - Spending time on the wrong issues
  - Employee morale / poor culture
  - Higher injury rates
  - Worked with Continuous Improvement Team to develop RCA process

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Previous "RCA" process

Incident Interview

Employee Name:

Others Present at Interview:

Date of Interview:

Date of Incident:

*****Was an injury reported immediately after the incident? If not, ask the employee why not.

Where were you working at the time of the incident?

What were you doing at the time of the incident?

What other job tasks were you responsible for?

What other job tasks were you responsible for?

If applicable, how was the equipment performing at the time of the incident?

What were the environmental conditions (weather, light, noise, etc.) at the time?

In your opinion, what caused this incident?

How might similar accidents be prevented in the future?

What is the most unsafe job task you have to perform and why?

Other facts / knowns from incident:

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Benefits of a robust RCA Program

- Improved employee morale as problems are reduced
- Employee's feel a sense of ownership of their safety
- Eliminating potential repeat problems
- Strengthen compliance with industry regulations
- Reduces plant risk which can help lead to lower injury rates

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Types of RCA's

- 5 Whys

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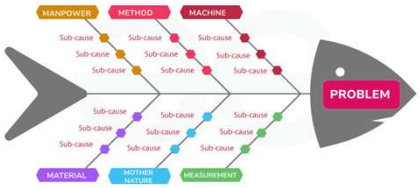
Types of RCA's

- Ishikawa / Fishbone



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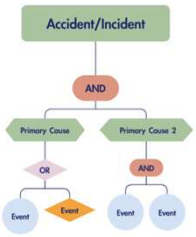
Types of RCA's

- Fault Tree Analysis



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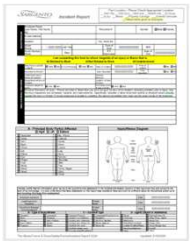
Initial Prep

- Complete Injury Report (IR), this includes:
  - Getting as much detail about the incident as possible (in the injured employee's own words)
  - Photos of the area/equipment in question
  - Interviewing potential witnesses
- Get employee the help they need first!



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Injury RCA Timeline

- **Immediately**
  - Administer first aid
  - Complete IR
  - Implement immediate corrective actions
- **Within 1 business day (after determining recordability)**
  - Schedule RCA (complete within 5 business days)
- **Prior to RCA meeting**
  - Complete initial portion of RCA Problem Solving Worksheet (5W1H)
  - Gather additional information
    - Photos
    - Training documents
    - Ergo/risk assessments
    - Complete interviews

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Roles and Responsibilities

- **Supervisor** – Ensure employee receives proper medical care, that employee fills out the IR, implements any immediate corrective actions, and uses the IR to fill in the RCA problem solving worksheet.
- **HSE Professional** – Schedules RCA, reviews previous injury data, ergo/risk assessments and any other other important documentation.
- **Production/Plant Manager** – Helps lead the RCA, maintains accountability for all RCA participants, ensures corrective actions are completed.
- **Injured Employee** – Fully participates in the RCA; helps team decide on potential root causes.
- Other possible RCA participants include HR representatives, maintenance supervisors, training specialists, witnesses, and Quality.

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RCA Documents

- RCA Guide
  - Sets expectations and reviews overall process.
  - Review with injured employee prior to the start of the meeting.

RCA Guide

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RCA Documents (cont.)

- Problem Solving Worksheet
  - Used during RCA meeting; Clarifies and analyzes the problem.
- Use these documents in tandem during the meeting.

Problem Solving Worksheet

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RCA Guide

Expectations: (read to team)

- All RCA meeting preparation activities are to be completed as described in the Safety Investigation Process procedure.
- Start the RCA by meeting on the production floor at the place the incident occurred.
- Introduce all team members to the employee. Refer to the Safety Investigation Process procedure for minimum required meeting attendees.
- State why the team is meeting:

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RCA Guide (cont.)

- State the meeting expectations:
  - The meeting will start on the production floor where the incident occurred.
  - Remain PRESENT and ENGAGED for the full duration of the investigation.
    - Please no side conversations
    - Limit the use of laptops, phones, and radios to emergency use only.
    - Demonstrate the professional behavior we expect of others.
    - As this is a brainstorming activity, all input matters. Be respectful to all attendees and points of view.
  - If unable to attend the RCA meeting, assign a designee to attend on your behalf.

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RCA Guide (cont.)

- **Step 1: Clarify the problem**
  - Start the investigation by having the team meet on the production floor and visually see the activity that was performed at the time of the incident. Whenever possible and protecting the employee from further injury, have the employee demonstrate or discuss how specifically the incident occurred.
  - Move to the team to the conference room and hand out copies of this guide for all meeting attendees.
  - Review the expectations section above to the team members.

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RCA Guide (cont.)

- **Step 2: Break down the problem**
  - Use the fishbone tool first to minimize risk of bias and to demonstrate a robust investigation has been performed.
  - See below example questions to prompt brainstorming.
  - Once all factors have been identified, select the most likely root cause(s) from the list. Keep in mind some of the factors identified might be contributing factors or gaps and not actual root causes.

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RCA Guide (cont.)

- **Step 3: Analyze the root cause**
  - Use 5 whys tool to dive deeper into the causes identified during the fishbone tool
  - Be precise as possible and try to avoid generic expressions such as incorrect, wrong, bad, etc. Try to quantify the statements.
  - Don't stop if you can ask why again!

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RCA Guide (cont.)

- **Step 4: Develop and implement countermeasures**
  - Develop short-term (temporary) countermeasures for activities that are high risk for causing additional injuries before long-term countermeasures can be implemented.
  - Develop long-term (permanent) countermeasures to prevent/minimize risk of recurrence.
  - Schedule effectiveness check to ensure long-term countermeasures have prevented/minimized risk of recurrence.

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Guide (cont.)

- **Step 4: Develop and implement countermeasures**
  - Develop short-term (temporary) countermeasures for activities that are high risk for causing additional injuries before long-term countermeasures can be implemented.
  - Develop long-term (permanent) countermeasures to prevent/minimize risk of recurrence.
  - Schedule effectiveness check to ensure long-term countermeasures have prevented/minimized risk of recurrence.
- **Step 5: Meeting Conclusion**
  - Thank the team for their time and insights.

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RCA Guide (cont.)

Define the Problem (5W1H Tool)	
When	When did the incident occur (date/time)?

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RCA Guide (cont.)

Define the Problem (5W1H Tool)	
When	When did the incident occur (date/time)?
Where	Go and see the activity on the floor. Take video/pictures of the activity/incident. Where did the incident occur (e.g., what line, what part of the equipment, what area - high care, pack area, CP, etc.)?

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RCA Guide (cont.)

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When	When did the incident occur (date/time)?
Where	Go and see the activity on the floor. Take video/pictures of the activity/incident. Where did the incident occur (e.g., what line, what part of the equipment, what area - high care, pack area, CP, etc.)?
Who	Who was impacted by the incident? Who else performs this same activity (e.g., employee titles, shifts, etc.)?

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RCA Guide (cont.)

Define the Problem (5W1H Tool)	
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Who	Who was impacted by the incident? Who else performs this same activity (e.g., employee titles, shifts, etc.)?
What	What activity was being performed at the time of the incident? What standard, process, or technique training (e.g., procedure, specification, control limit, guard rail/expectation, etc.) is in place for this activity to detail how the activity is to be optimally in the ergonomic zone?

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RCA Guide (cont.)

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When	When did the incident occur (date/time)?
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Who	Who was impacted by the incident? Who else performs this same activity (e.g., employee titles, shifts, etc.)?
What	What activity was being performed at the time of the incident? What standard, process, or technique training (e.g., procedure, specification, control limit, guard rail/expectation, etc.) is in place for this activity to detail how the activity is to be optimally in the ergonomic zone?
How	How did the incident occur? Describe in detail.

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RCA Guide (cont.)

Define the Problem (5W1H Tool)	
When	When did the incident occur (date/time)?
Where	Go and see the activity on the floor. Take video/pictures of the activity/incident. Where did the incident occur (e.g., what line, what part of the equipment, what area - high care, pack area, CP, etc.)?
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What	What activity was being performed at the time of the incident? What standard, process, or technique training (e.g., procedure, specification, control limit, guard rail/expectation, etc.) is in place for this activity to detail how the activity is to be optimally in the ergonomic zone?
How	How did the incident occur? Describe in detail.
Which	Review any raw data available looking for trends (e.g., safety observations, # of injuries reported for the same activity, history of changes in the area or equipment, etc.). Which trend or pattern does the issue have? At which frequency does the activity occur?

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RCA Guide (cont.)

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How	How did the incident occur? Describe in detail.
Which	Review any raw data available looking for trends (e.g., safety observations, # of injuries reported for the same activity, history of changes in the area or equipment, etc.). Which trend or pattern does the issue have? At which frequency does the activity occur?
Problem Statement	Write a statement using all the details listed above. Include pictures whenever possible.

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RCA Guide (cont.)

Root Cause Analysis (Cause and Effect Tool)	
Machine	Was tool/machine involved in incident? Should a tool/machine have been used?
	Was the tool/machine adequate for the task? Is there a better tool/machine that would be better for the activity being performed?
	Was tool/machine inspected before use?
	Was the tool/machine defective?
	Did a manufacturer defect contribute to the incident?
	Were machine safety devices available and operational?
	Was the machine operating properly prior to the incident? Were there any repairs made to the machine since the incident?
	Is the machine capable of LOTO per the safety procedure?
	Were there unusual amounts of downtime during the shift?
	Were casters and wheels in good condition and sized properly?
	Any additional machine factors?

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RCA Guide (cont.)

Environment (Mother Nature)	Was it too hot – cold – noisy – dark?
	Was crowding or congestion a problem?
	Were slippery floors a contributing factor?
	Was poor housekeeping an issue?
	Did environmental conditions affect the performance of materials, machines, or workspace?
	Any other environmental factors?

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RCA Guide (cont.)

Method	Has a Job Safety Analysis been completed on this job? What were its findings?
	Does Employee fit job ergonomically (height, weight, etc.)?
	Did a non-routine incident contribute (breakdown etc.)?
	Have there been similar incidents on this job?
	Is the current crew standard adequate for the activity?
	Should the machine have been LOTO during the activity?
	Is there a procedure in place detailing the proper technique to perform this activity in the ergonomic green zone?
	Is there a standard workstation setup for this activity to reduce ergonomic risk?
	Was the Employee properly trained following the Tell, Show, Do, Review method?
	Is the training sufficient to instruct the Employee on how to correctly perform the activity?
	Any changes in the job since Employee was trained and were the existing employees trained on the change? Was the procedure/training updated accordingly as well?
	How long ago was the Employee trained on this activity? Should refresher training have happened?
	Are there position rotation expectations in place/scheduled for the activity that was performed? Should there be a position rotation in place?
	Were any safety observations/audits completed in the area around the time of the incident? Were any findings related to this incident?
	Any additional method factors?

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RCA Guide (cont.)

People	Was the Employee in their probationary period?
	Was the Employee authorized/qualified to do the job?
	Were established safety procedures followed?
	Has the Employee been coached within the past 12 months for not following established safety procedures?
	Has the Employee had any previous safety incidents or near misses within the past 12 months?
	Did the Employee follow the position rotation expectations?
	Did the Employee stretch prior to the shift/position as recommended?
	Did the Employee feel rushed at the time of the issue?
	Was fatigue a factor (significant overtime – more than 7 days in a row)?
	Was the Employee distracted at the time of the incident? What was the distraction?
	Does the leader communicate the importance of standards, procedures, SOPs, and expectations?
	Were the correct amount of personnel used for the activity per the standard?
	Any additional people factors?

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Guide (cont.)

Materials	Are all production packaging materials meeting specifications?
	Were all product materials consistent between lots and batches and meeting specifications?
	Was PPE required for this job and was it used?
	Was PPE the correct type and adequate to prevent exposure to the hazards?
	Did the PPE fail?
	Any other material factors?

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Guide (cont.)

Measurement	Was the line achieving its daily production goals at the time of the injury?
	Was the line or cycle speed changed during the shift?
	Were there an unusual number of product weight kickoffs?
	Any additional measurement factors?

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The Injury

A 2nd shift employee walked into the men's bathroom to use the far right urinal. As they walked in front of it, they slipped and fell on his back. This resulted in a contusion and soreness. The employee was given restrictions. This made the injury an OSHA recordable.

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Problem Solving Worksheet

Sargento Problem Solving Worksheet

Project Name	Team Members				Start Date			
Men's Locker Room - Slip and fall injury	Name	Role	Name	Role				
Project Leader		Safety Pro Manager, Quality Services		Process Technician (PT)	Completion Date/Sign Off			
		South Production Manager		Project Technician				
Project Champion		Assistant Plant Manager		Engineer	Category			
		Production Supervisor		HR	EE Safety	Quality	Process Improv.	
Dept/Area: Men's Locker Room		Plant Manager		CI Engineer	X			

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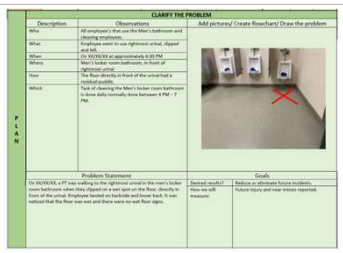
Problem Solving Worksheet (cont.)



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Problem Solving Worksheet (cont.)

BREAK DOWN THE PROBLEM					
Machine	Environment	Method	People	Materials	Measurement
NA	Shadow in corner Dirt build-up Slippery floor Style of urinal screen	No JSA has been performed for this activity. Length of time cones/wet floor signs are out. No audits of the common areas No specific time defined to clean bathrooms	NA	Tread of shoes were worn Floor possibly more worn out than other areas Concentration/type of cleaner Floor type	NA

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Problem Solving Worksheet (cont.)

ANALYZE THE ROOT CAUSE(S)				
WHY (1)	WHY (2)	WHY (3)	WHY (4)	WHY (5)
Ex. Employee tripped over the pallet jack	***Ex. The pallet jack rolled***	***Ex. The current slope of the floor***	***Ex. No current brakes on the pallet jack***	

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Problem Solving Worksheet (cont.)

WHY (1)	WHY (2)	WHY (3)	WHY (4)	WHY (5)
Ex. Employee tripped over the pallet jack	***Ex. The pallet jack rolled***	***Ex. The current slope of the floor***	***Ex. No current brakes on the pallet jack***	
Employee slipped and fell onto floor	There was liquid on the floor	Floor was not pitch towards drain	Improper installation (pitch)	
Employee slipped and fell onto floor	There was liquid on the floor	Splatter from the style of urinal screen	Style of urinal screen	

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Problem Solving Worksheet (cont.)

WHY (1)	WHY (2)	WHY (3)	WHY (4)	WHY (5)
Ex. Employee tripped over the pallet jack	***Ex. The pallet jack rolled***	***Ex. The current slope of the floor***	***Ex. No current brakes on the pallet jack***	
Employee slipped and fell onto floor	There was liquid on the floor	Floor was not pitch towards drain	Improper installation (pitch)	
Employee slipped and fell onto floor	There was liquid on the floor	Splatter from the style of urinal screen	Style of urinal screen	
Employee slipped and fell onto the floor	Unaware of the puddle	Shadow from the urinal makes it difficult to see	Poor lighting	
Employee slipped and fell onto the floor	Tread of shoes was worn	Employee's shoes were 1.5 years old	Employee was unaware of the updated shoe allowances	No inspection plan to audit treads/Tread training

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Problem Solving Worksheet (cont.)

ANALYZE THE ROOT CAUSE(S)				
WHY (1)	WHY (2)	WHY (3)	WHY (4)	WHY (5)
Ex. Employee tripped over the pallet jack	***Ex. The pallet jack rolled***	***Ex. The current slope of the floor***	***Ex. No current brakes on the pallet jack***	
Employee slipped and fell onto floor	There was liquid on the floor	Floor was not pitched towards drain	Improper pitch	
Employee slipped and fell onto floor	There was liquid on the floor	Splatter from the style of urinal screen	Style of urinal screen	
Employee slipped and fell onto the floor	Unaware of the liquid	Shadow on the floor made it difficult to see	Poor lighting	
Employee slipped and fell onto the floor	Tread of shoes was worn	Employee's shoes were 1.5 years old	Employee was unaware of the updated shoe allowances	No inspection plan to audit treads/Tread training
Employee slipped and fell onto the floor	Slippery floors	No specified time for cleaning / duration of when cones/wet floor signs are out		
Employee slipped and fell onto the floor	Slippery floors	Current floor material not adequate (CoF low)		
Employee slipped and fell onto the floor	Slippery floors	Concentration of chemicals		

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Root Cause vs. Contributing Factor

- It can often be difficult to determine the true root cause of an injury.
- **A root cause** is the fundamental, underlying reason a problem occurs, and fixing it prevents recurrence.
- A **contributing factor** is a condition that helps the problem happen or makes it worse but doesn't cause it alone. Addressing root causes eliminates the problem, while fixing contributing factors only reduces likelihood
- So… What are we thinking is the root cause from our injury?

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What is the Root Cause??

ANALYZE THE ROOT CAUSE(S)				
WHY (1)	WHY (2)	WHY (3)	WHY (4)	WHY (5)
Ex. Employee tripped over the pallet jack	***Ex. The pallet jack rolled***	***Ex. The current slope of the floor***	***Ex. No current brakes on the pallet jack***	
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Employee slipped and fell onto the floor	Slippery floors	No specified time for cleaning / duration of when cones/wet floor signs are out		
Employee slipped and fell onto the floor	Slippery floors	Current floor material not adequate (CoF low)		
Employee slipped and fell onto the floor	Slippery floors	Concentration of chemicals		
MOST LIKELY ROOT CAUSE(S):	Style of Urinal Screen			

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Ding Ding Ding!!!

- The style of urinal screen caused the floors to get wet and slippery.
- Contributing factors included the employee's worn shoe tread, poor lighting, floor texture and slope, and a lack of a cleaning schedule.

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Problem Solving Worksheet (cont.)

DEVELOP & IMPLEMENT COUNTERMEASURES				
No.	Action	Owner	Update By	Completion Date
1	Investigate pitch			
2	Investigate additional lighting options			

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Problem Solving Worksheet (cont.)

	DEVELOP & IMPLEMENT COUNTERMEASURES				
	No.	Action	Owner	Update By	Completion Date
D O	1	Investigate pitch			
	2	Investigate additional lighting options			
	3	Remove West wall paper towel holder			
	4	Investigate tread standard/then create safety audit to inspect			

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Problem Solving Worksheet (cont.)

	DEVELOP & IMPLEMENT COUNTERMEASURES				
	No.	Action	Owner	Update By	Completion Date
D O	1	Investigate pitch			
	2	Investigate additional lighting options			
	3	Remove West wall paper towel holder			
	4	Investigate tread standard/then create safety audit to inspect			
	5	Determine cleaning timeline/order (hallway/bathroom)			
	6	Verify employee's shoe allowance			

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Problem Solving Worksheet (cont.)

	DEVELOP & IMPLEMENT COUNTERMEASURES				
	No.	Action	Owner	Update By	Completion Date
D O	1	Investigate pitch			
	2	Investigate additional lighting options			
	3	Remove West wall paper towel holder			
	4	Investigate tread standard/then create safety audit to inspect			
	5	Determine cleaning timeline/order (hallway/bathroom)			
	6	Verify employee's shoe allowance			
	7	Investigate floor material options			
	8	Verify chemical being used/investigate other			
	9	Investigate urinal style of urinal screen			

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Potential Challenges

- Initial spinning of the wheels
- Overwhelming feeling
  - Might have multiple injury RCAs to complete at any given time
- Overcoming the injured employee's uncomfortableness
- **Buy-in from Plant Leadership**
- Employee follow-up
- Timeliness of completing action items

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Employee Follow-up

- Needed a system to keep track of open RCA corrective actions.
- We use the Action Tracker system through Gensuite.
  - Review overdue items during weekly staff meeting.
  - Post completed items on weekly Safety One Pager.

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RCA Results

- Completed over 50 corrective actions
  - Including changing the style of urinal screen
- Injury rates have declined since starting the RCA process in 2024
  - TRIR – decreased by 3.2%
  - **DART – decreased by 25%**
- Anecdotally, many injured employees have thanked us for taking the time to do the RCA and including them in the process.

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The Don'ts

- Don't just use the pictures taken by the supervisor in the initial investigation, go out to the location of the injury and get a feel for how the injury occurred.
- Don't ask the injured employee leading questions.
- Don't come to the RCA with preconceived ideas/thoughts.
- Don't interrupt the injured employee while they are talking.
- Don't use your computer or phone during the RCA. If it's an emergency step out of the meeting. Stay engaged!
- **Don't try to solve the potential issue during the RCA!**

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Let's give away some cheese and merch!

Q1: Can you name three "bones" from the Ishikawa (Fishbone) RCA tool?

Q2: What is the #1 thing NOT to do during the RCA process?

Q3: Can you name two types of RCAs?

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Question and Answer

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