

Engaging Employees for a Safety Accountability System that Eliminates Injuries

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Introduction

There are plenty of “four letter words” in the work-a-day world, but *accountability* shouldn’t be one of them — especially when the topic pertains to heightening safety awareness and protecting lives. So, where did the concept of “safety accountability” go wrong? More important, *why*? Could it be because employees, managers, and supervisors too often . . .

- See safety as a priority and not as a value, resulting in mixed messaging and lost credibility?
- Hear about safety almost exclusively AFTER incidents occur, resulting in negative communications that de-motivate?
- Listen to all the “boring, bolted-on” expectations to conduct inspections, do observations, etc., yet are given no time or training to successfully complete them and never get feedback as to how they are doing?
- Feel bound to tradition that dictates having non-value added activities, like safety meetings, that everyone hates to attend?
- Do not believe safety is managed with the same intensity as everything else. It is driven by words rather than by actions?

Beginning in 2008, Wagner Equipment Company (Aurora, Colo.) embarked on an effort to improve its safety performance through a Six Sigma process. A steering team established several safety culture improvement targets to affect commitment, compliance, and accountability. The initiative included:

- Internal Safety Survey

- Safety Leadership Training to include START
- Inspections
- Safety Meetings
- Accident Reporting

The opportunity goals stated by the team included first year reductions in:

- Total Injury Recordable Rate by 50%
- Medical Only Rate by 57%
- DART rate by 45%
- Lag Time of injury reports from nine days to less than one day

While this culture-change initiative was a companywide goal, the following success story is focused on a four-day “Safety Kaizen Blitz” targeted at identifying and developing processes and specific accountabilities at a particular location. The outcomes have built trust, encouraged employee involvement, enabled the identification and control of previously unknown or unrecognized risks, and enhanced management credibility through very visible and positive action. The approach, techniques and tools that were used and their dramatic results are explained below.

The Approach

To achieve the stated goals, several things had to happen, starting with obtaining visible leadership and engaging employees in a Safety Kaizen Blitz continuous improvement process.

Engaging Leadership

Organizational safety improvement efforts are often thwarted for at least one of these three reasons:

- Executive leaders don’t entirely buy into the impact of safety excellence or are not visibly demonstrating genuine support.
- Managers and supervisors lack sufficient training and skills, often sending mixed messages.
- Front-line employees do not take ownership of safety and feel that it’s someone else’s job.

The management team at Wagner was struggling with many of these same issues. Step one was to complete the safety leadership training as recommended by the Six Sigma process team. The objectives of the training were to unify leadership in their understanding and application of current safety management techniques and to help them understand their specific roles in safety leadership. The training included:

- Insights into Effective Safety Management
- Six Criteria of Safety Excellence
- The four-step accountability model

- Six Levels of Safety Management
- Recognizing and investigation methods
- Inspections with a focus on “catching people doing the right thing”
- Safety Meetings that identify and solve problems
- Education and Motivation

While sitting through the training, an executive heard the Six Criteria for Safety Excellence (listed later), which includes “Criterion 1: Visible Leadership Commitment” and began stirring and asking questions about what this visibility looked like; he wanted examples. It was apparent that he wanted to figure out the right things to do. The training then moved through the four-step accountability model (explained later) and into a case study that tied together the accountability model with the Six Criteria for Safety Excellence. The executive was moved to stand up and proclaim that this “is what I want, I want it now, and I want to know how to get it.” A discussion resulted in the decision for him to begin demonstrating leadership visibility by sponsoring and attending the four-day Safety Kaizen Blitz outlined below.

The Safety Kaizen Blitz

Using team-member selection criteria to include passionate volunteers respected by peers, the sponsoring executive chose five team members: two supervisors and three hourly employees. The team was commissioned to blitz current safety opportunities and develop three to four pilot improvement processes over the course of four days. To start, the team was given basic background training to include:

- Why Safety Programs Don’t Work
- Insights into Effective Safety Management
- Six Criteria for Safety Excellence
- The Four-step Accountability Model
- Six Levels of Safety Management
- Root Cause of Incidents
- The Accident Reaction Cycle
- The Human and Financial “Costs” of Incidents

Tools and Techniques

To ensure efficient outcomes of the Safety Kaizen Team, training support was used to introduce ground rules and some simple, non-math six sigma tools. In addition, the team was given a definition of what they were expected to deliver at the end of their efforts. These tools, techniques and expectations included:

- Identification and Selection of Target Safety Process Elements
- Complaint Equals Goal
- Diverge Converge and Pareto Voting
- The POP statement; the team’s Purpose, Outcomes and Process
- An Action Item Matrix to track team progress and results
- A Fault Tree Diagram

- A Fishbone Diagram
- Documented processes, instructions and accountabilities
- Methods to measure and motivate
- Implementation Plan

Identification and Selection of Target Safety Process Elements

The team was presented with ten preselected safety program elements, including safety meetings, inspections, pre-job planning, observations, investigations, near miss reporting, planned personal contacts, task analysis, stretching, and the like. A basic overview of each was provided in order to prepare the team to focus on the three or four they believed would have the most significant impact on their safety in the shortest amount of time. Following is an explanation of each tool utilized; including team specific examples.

Complaint Equals Goal

The team was given an opportunity to use a technique called “Complaint Equals Goal,” which is a brainstorming tool that generates a list of things that need improvement. The techniques provided an opportunity to add to the original ten preselected programs and get additional buy-in and participation. This discussion generated two or three additional targets that interested the team. At this point, there were too many to successfully tackle within the four-day time constraints of the team. To resolve this issue, the team used the “Diverge-Converge” approach.

Diverge-Converge and Pareto Voting

Diverge-Converge was able to take the divergent list generated from Complaint Equals Goal and pare it down to a manageable few. Pareto voting was then used to prioritize the four selected (converged) processes. Simply put, each team member was given three votes: one each to be placed by the process they believed should be targeted for improvement. Another round of Pareto voting was then used to determine the order in which to address the targeted four. The Complaint Equals Goal, Diverge-Converge, and Pareto voting techniques resulted in agreement to focus on the following:

- Near Miss Reporting
- Job Safety Assessment
- Safety Meetings
- Inspections

As dictated by the Pareto vote results, the team proceeded with Near Miss Reporting, and the next step toward change, the POP statement.

The POP Statement

One of the fundamental mechanisms to keep the Safety Kaizen Blitz on target was for the team to develop a Purpose Outcomes and Process (POP) statement for their task (1). By employing this tool, the team was able to remain focused and stay on task. It’s simple:

Purpose

This is a mini-mission statement. Why are we meeting? “What is our purpose for this meeting?” The team developed the following POP statements for the overall safety Kaizen and for the near miss reporting process statement:

Team Purpose: Change safety culture and develop a safer incident free workplace by identifying problems and positive process solutions that are employee/workforce driven.

Near Miss Purpose: Nurture safety culture by involving all employees in reporting, analyzing and communicating lessons learned from Near Misses.

If the team starts to wander or branch into a separate tangent, ask if this current topic is “on purpose.”

Outcomes

What will be accomplished when the stated purpose is achieved? This is a brainstorm list of the issues the team is designed to address. It is also the metric for whether or not the tasks the team set out to accomplish have been accomplished (1). The whole team participates in setting these outcomes and therefore seeks complete agreement on definitions of success. For near miss reporting, the team’s outcomes included:

- Define near miss accountabilities for each level of the organization
- Determine appropriate measures for near miss reporting by crew or individual
- Determine rewards and/or recognition methods that motivate reporting
- Flexibility
- Determine and establish training needs as appropriate
- Forms – keep them simple (i.e., “KISS”)
- Minimize paper and paperwork
- Consider communication needs so lessons are learned
- Implementation and roll out plan; to include a pilot first

Process

How will we accomplish our purpose and outcomes? Typically, what follows is a description of how the team will work (1). The team’s process included:

- Filter all decisions through the 6 Criteria of Safety Excellence
- Assign tasks to individual or team sub groups complete and report back to the team
- Quick decisions and move on.

The Action Item Matrix

In order to deliver closure on the team POP, there are a significant number of tasks that need to be done by a variety of people in varying time frames (1). To effectively manage this wide spectrum, the teams used an Action Item Matrix (AIM), a simple five-column spreadsheet that lists:

Item number. This is a number for each item on the list. As action items are completed, they keep their number and are moved to the bottom of the list. This way there is always a record of what has been completed, as well as what still needs to be accomplished.

Task to be accomplished. This is a simple, succinct statement of the issue. Each task or action item is a small, bite-size manageable piece of the larger project scope.

The team. This is a list of the “volunteers” that have agreed to accomplish this action item. There may be one or more, or — in some cases — no one if the assignment isn’t ready to be worked on.

The date. This is the next report date for the task team on this action item. Sometimes it is a completion date, sometimes a progress report date.

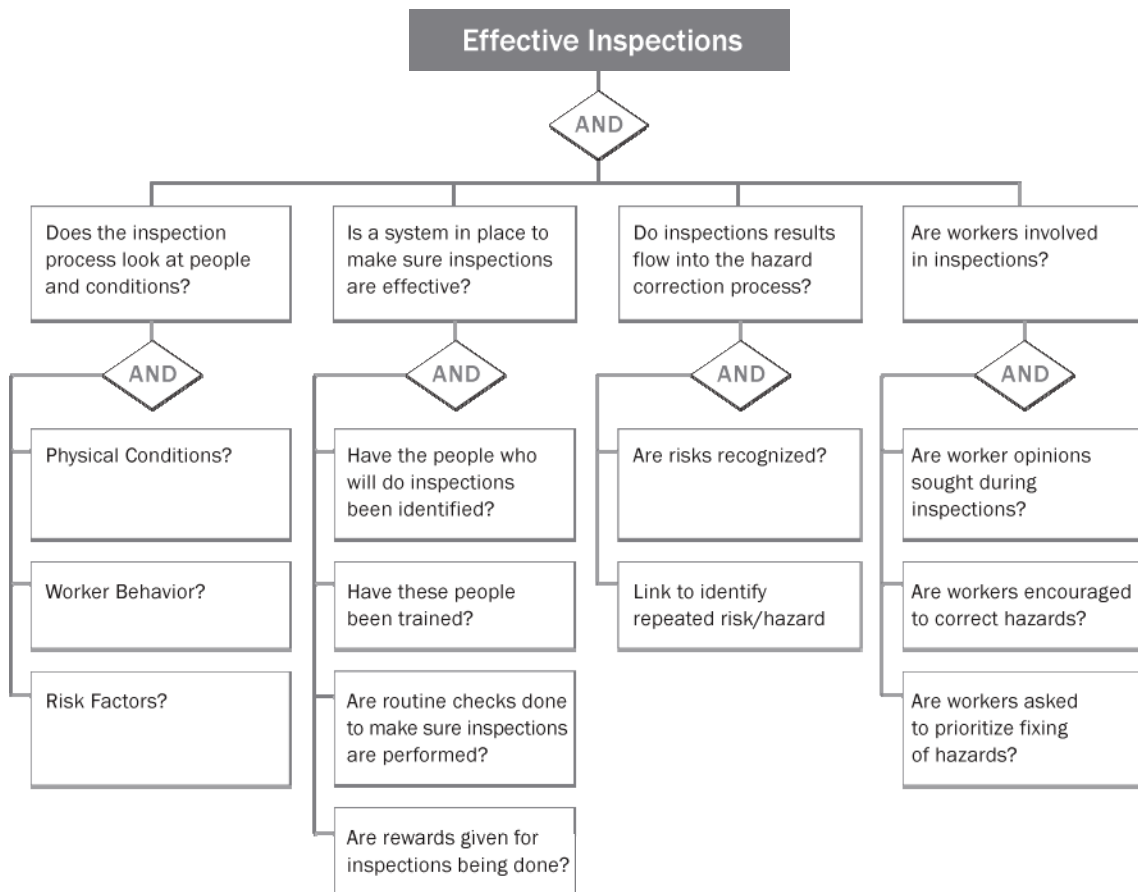
Comments. This is a field to succinctly write down whatever is pertinent to the action item, e.g., “awaiting vendor quote.”

Here is an abridged example of an AIM for actions the near miss process focused on.

ACTION ITEM MATRIX				
Team: Albuquerque Kaizen			Date: August 22, 2008	
Item	Action Item/ Task	Who	Target	Comments
1	Complete final NMR form	Safety Team	9/2/2008	COMPLETE D DRAFT
2	Review with Shop Mgrs/Safety Teams	Fields	2-Sep-08	
3	Drop boxes, locations (flags, smoke??)	Safety Team	12-Sep-08	Receive feedback from employees who wish not to be indentified
4	EMEDCO style electronic board page 764	Marketing C. Nielsen	26-Sep-08	Electronic message board located at employee entrance reporting accidents/no lost time

The Fault-Tree Diagram

A Fault-Tree Diagram was used by the Safety Kaizen Team in an effort to better define their critical success criteria (1). The safety category/process that is being analyzed is listed in the top box and is usually stated in terms of a goal or a desired performance. The boxes on the second level use a question to describe the conditions required for the goal to be achieved. The two connector symbols, “and” and “or” describe the relationship between the goal and its conditions. The “and” symbol means that all of the conditions must be present for the goal to be achieved. The “or” symbol means that only one of the conditions needs to be present for the goal to be achieved. Following is the Fault-Tree Diagram used by the Kaizen team to address inspections:

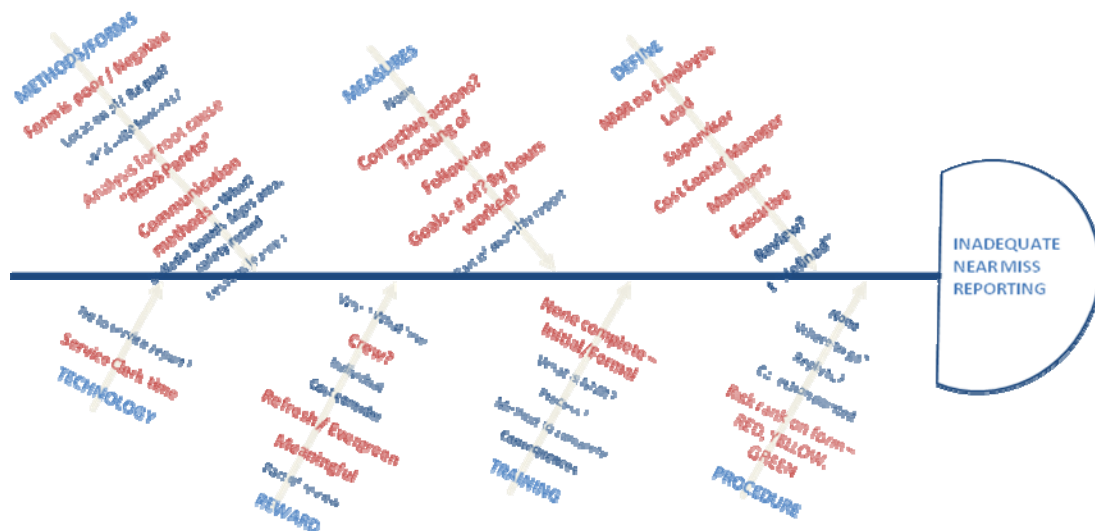


The Fishbone Diagram

The Fishbone Diagram was used next to better flesh out the details of the Fault-Tree Analysis diagrams (1). The Fishbone Diagram is also an excellent tool any time you wish to provide guiding structure for a group in a brainstorming activity.

This management tool is usually associated with Total Quality Management programs and is often referred to as a Cause and Effect Diagram and Ishikawa chart. The name "fishbone" originates with its original author, who drew the chart to resemble the skeleton of a fish.

Since the Fishbone Diagram is meant for brainstorming, it is much less structured than Fault Tree Analysis. It offers a framework that allows your problem-solving group to uncover unique issues facing your company. Following is the Fishbone Diagram developed for the near miss analysis.



The items listed on the fishbone become part of the Outcomes listed in the POP statement.

Clearly documented process, instructions and accountabilities

Clearly documenting processes was determined to mean the following:

- Meeting the six criteria of safety excellence
- Defining accountabilities that are clear for each level of the organization

Dr. Dan Petersen's Six Criteria for Safety Excellence (2) were used as a filter to determine the appropriateness of action. These six criteria must be in place in order to achieve sustainable safety success. They six criteria are:

1. Top Management is Visibly Committed

2. Middle Management is Actively Involved
3. Supervisor Performance is Focused
4. Hourly employees are actively participating
5. System is flexible to accommodate site culture
6. System is perceived as positive by the hourly workforce

Second, the concepts of the safety accountability cycle were built into each of the four processes. The accountability model is illustrated below:



Specifically:

1. Defined expectations. What must be done at every level of the organization to ensure satisfactory near miss reporting?
2. What training is necessary to enable performance of these expectations?
3. How will performance be measured? How does the organization know, by affected individual and or crew, if expectations are being met?
4. How would successful performance be rewarded in a way that is meaningful to those whose actions the organization is trying to motivate?

Examples of specific accountability solutions for the team included the following for Near Miss Reporting and inspections.

Employee

- Report to Lead, Scheduler. Manager any recognized near miss and complete form, including suggested corrective actions.
- Participate as requested on “Weekly Safety Performance” (WSP) inspection.

Leads

- Same as Employee. Plus interview with employee to determine RED, YELLOW, GREEN. Actions taken, help needed if RED. Lead daily “ bucket meeting” to communicate safety.
- Participate as requested on” Weekly Safety Performance” (WSP) inspection.

Scheduler

- Regarding near misses, same as employee, same as lead. Coordinate root analysis on REDS, "Follow-up", tracks corrective actions generated on all NMR reports.
- Conduct "Weekly Safety Performance" (WSP) inspection.
- Enter items on Action Item Report.
- Track Items to close.

Manager




- Regarding Near Misses, same as employee, lead, scheduler. Backup leads on daily, start of daily "bucket meeting" to communicate safety. Communicate numbers, status, provide recognition, NMR, behavior observations, inspection issues.
- Conduct monthly "Weekly Safety Performance" (WSP) inspection.

Store Manager and/or Senior Manager

- Conduct quarterly "Weekly Safety Performance" (WSP) inspection.

Some specific process forms and instructions developed by the team included new forms. Two examples are provided below.

Near Miss Reporting Form:

Near Miss Report **APPROPRIATE LEVEL**   

Red **Yellow** **Green**

Stop Work And Report Use Caution And Report Continue And Report

Location: _____ Time: _____ Date: _____

Dept.: _____ City/State: _____

Ground Surface And Weather Condition (If Applicable) _____

Reported By (Optional)/Dept.: _____

Supervisor Review: _____ Date: _____

Describe Near Miss (Use Reverse Side If Necessary): _____

Description of Occurrence: _____

Actions Taken: _____

Root Cause(s) – Required For Red: _____

Were Pictures Taken: Yes No

The Job Safety Assessment Form:

Job Safety Assessment (JSA) DAILY



Date: _____

Name: _____ Work Order: _____

Task(s): _____

Are You Fit For Duty Today? Yes No

Have Job Specific Tools and Equipment Required For This Job Been Inspected
And Are They In Working Condition? Yes No

If No, What Corrective Actions Have I Taken? _____

What Unsafe Conditions Or Acts Can I Anticipate While Performing This
Job And What Actions Can I Take To Reduce My Risk Of Injury? _____

Can Inclement Weather, Soft Slippery Underfoot Conditions Increase My Risk Of Injury? Yes No

If Yes, What Precautions Will I Take To Reduce My Risk Of Injury? _____

Verification: Manager/Lead Man _____

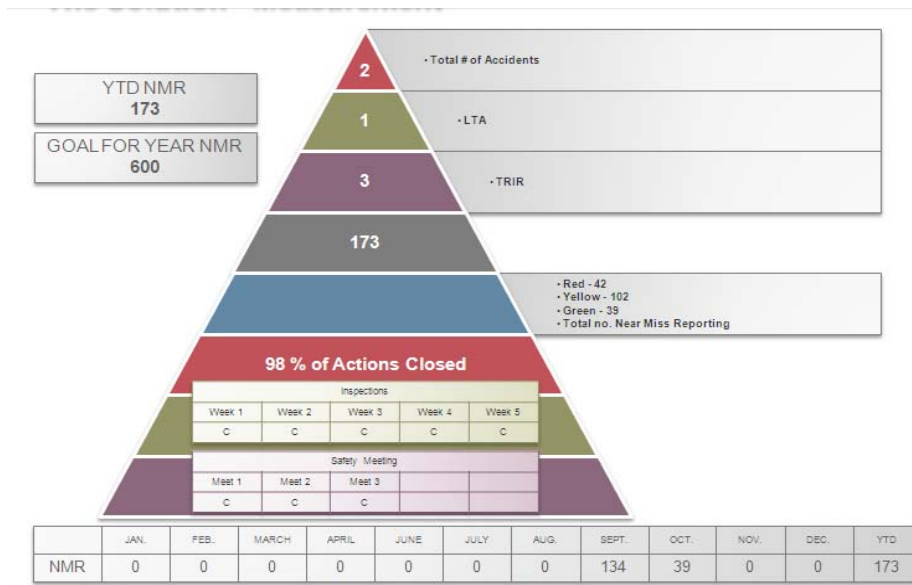
Methods to measure, track, and motivate

Because “what gets measured, gets done” (an edict that was now fully adopted by the team), the cross-functional volunteers decided to establish criteria for establishing measurements:

- They had to include each department; with totals rolling up to the entire store
- They had to be comparable to minimal goals
- They must be tracked to closure. For example actions generated via any activities; i.e. safety meetings, inspections, near misses, job safety assessments, etc. needed to be captured and tracked to resolution
- It had to be visible to each department and crew
- It had to be simple

Following is one of the measurement methods developed and now in use. Note that all activities are tracked in one form that is update weekly. This method was used to provide summaries of activities by store and by department. Among the tracked items:

- Traditional Outcomes such as Recordable and Lost Time injuries
- Number of Near Misses reported by relative risk (Red, Yellow, Green)
- Scheduled Inspections completed
- Scheduled Safety Meetings completed
- Percent of Actions Closed (with a target of 95% within 30 days)



A method to track open actions generated by these new safety activities was also needed. In addition to these methods, resources were also needed. To accomplish this task, the team leader (remember, an executive) immediately cut through red tape and rearranged the job responsibilities of department clerks to include safety. The clerks, normally tasked with collecting and managing production and cost data, were now tasked with collecting and tracking critical safety data. A clerk was added to the team (for ownership) and came up with the following reporting formats (two samples below).

		Open/Closed Level (R,Y,G)				Closed		Open			Grand Total	
Department	Data	Green	Red	Red/Yellow	Yellow	Closed Total	Green	Red	Yellow	Open Total	Grand Total	
Component Shop	Count of Level (R,Y,G)	2	5			8	15				15	
	Count of Open/Closed	2	5			8					15	
Field Service	Count of Level (R,Y,G)	1	2			3					3	
	Count of Open/Closed	1	2			3					3	
Hydr. Shop	Count of Level (R,Y,G)					1					1	
	Count of Open/Closed					1					1	
Main Shop	Count of Level (R,Y,G)	7	20			40	67		1	1	68	
	Count of Open/Closed	7	20			40	67		1	1	68	
Parts Dept	Count of Level (R,Y,G)	4	6			9	19				19	
	Count of Open/Closed	4	6			9	19				19	
Power Systems	Count of Level (R,Y,G)		1			2	3	2	3	5	8	
	Count of Open/Closed		1			2	3	2	3	5	8	
Spec Shop	Count of Level (R,Y,G)					1	1				1	
	Count of Open/Closed					1	1				1	
Truck Shop	Count of Level (R,Y,G)					2	2	2	1	3	6	
	Count of Open/Closed					2	2	2	1	3	6	
UR	Count of Level (R,Y,G)		34	21	1	80	136		2	2	4	
	Count of Open/Closed		34	21	1	80	136		2	2	4	
UR	Count of Level (R,Y,G)					1	1				1	
	Count of Open/Closed					1	1				1	
Yard	Count of Level (R,Y,G)		2			4	6				6	
	Count of Open/Closed		2			4	6				6	
Total Count of Level (R,Y,G)			50	55	1	148	254	4	3	9	16	
Total Count of Open/Closed			50	55	1	148	254	4	3	9	16	

Department	Action Item	Generated By	Level (R,Y,G)	Target Date	Completion Date	Open/Closed	Comments:
Main Shop	East side of mainshop bay doors are cluttered with boxes, parts and misc items. Blocking the walkway in case of an emergency.	Main Shop	Yellow	1/22/2009		Open	Signed, no action reported
UR	Tim Reedy using the bench grinder with no glasses or face shield on	UR Dept.	Red	1/23/2009		Open	Signed, no action reported
UR	Steve Payton air arching guard plate off of 140M, had top welds cut off, only had bottom two welds supporting guard and he was under the guard. Asked him to support the guard before continuing.	UR Dept.	Yellow	1/23/2009	1/23/2009	Closed	Asked him to support the guard before continuing
UR	Found P.E. forklift outside of the rental shop with forks raised in the air. There is a bolt in the fork, trailer and bolt are bent and had to be removed to be useful.	Main Shop	Yellow	1/28/2009		Open	No signature
UR	customer rising on the outside of the cab of a loader, operator also a customer	UR Dept.	Yellow	1/30/2009		Open	Signed, no action reported
UR	Pressure washer gun leaks at the handle	UR Dept.	Red	1/30/2009		Open	Signed, no action reported
UR	Seals in the propane tank; for forklifts are dry & cracked. Most of them leak propane. NOTE: Be sure to check for fuel leaks when you install a new tank. Reported so that Tri-gas will have to replace the seals on the tanks, this is also a waste of propane.	UR Dept.	Yellow	2/3/2009	2/3/2009	Closed	Notified Tri-Gas about the seals
UR	Noticed 770 haul truck being cleaned with tech standing on top of truck, conditions were wet & slippery, no harness was being used. Suggested to a shop lead that a harness be used. Corrective action was taken immediately.	UR Dept.	Red	2/3/2009	2/3/2009	Closed	Shop lead took corrective action right away.

Implementation and Roll-Out

Now that the team was excited and very comfortable with their work product, it was time to roll it out. The challenge: how to present and “sell” this information to peers. The advantage: the presentation would come from peers and — *more important* — from peers who developed the processes and were all on board. Everyone now had “skin in the game.” The team prepared a training package delivered to small groups in four-hour windows and something *clicked*. The collective epiphany was palpable. Following are the results.

Results

The numbers indicate ongoing success throughout this project. Against stated lagging indicator objectives:

- Recordable Injury rates are down, exceeding the initial company goal of 50%
- January ‘09 was the first month ever for zero incidents
- Lag time down to 1.9 days

Basing the success on the facts and figures above, however, falls way short of the real outcomes and benefits by failing to recognize the cultural transformation that’s taking place. The full story includes how these numbers were achieved. The following points provide a summary of the impact on the Wagner Equipment effort:

- A workforce-level employee steps up to take a leadership role. The passion is focused where the risks are located. One of the team members (a 24-year old who is relatively new to the organization) asked to lead the final implementation presentation. He was so enthusiastic (and proud) to take part, he asked if his wife could attend his presentation. *Wow!*
- An executive who “gets” his role in safety; he leads, asks questions and provides feedback and support to ensure that the work teams are getting what they need. He is also shifting ownership to those at risk by developing a “want to” culture that solves problems (rather than a “have to” culture that pencil whips non-value activities).

- 290 near misses reported in five months *where none had been reported before.*
- A 94% closed rate on action items, which are all visible to the workforce “solution providers.”
- Hundreds of pre-job hazards assessments are completed *where none had been done before.*

Sold! The next steps are to roll this pilot project out to additional stores in the region. The team is eager to see what happens next.

References

- (1) **Williamsen, Mike.** *Using Continuous Improvement lean manufacturing teams to Develop effective safety management processes*, Portland, Ore.; CoreMedia Training Solutions, 2008
- (2) **Petersen, Dan.** *The Challenge of Change: Creating a New Safety Culture*. Portland, Ore.: CoreMedia Training Solutions, 1993.