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## **Increasing Near-Miss Reporting Through a Culture of Mutual Understanding and Self-Disclosure**

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### **Abstract**

Considering the known benefits of near-miss reporting, why are workers on the front lines of the process industries – operators and maintenance technicians – still so reluctant to communicate their daily experiences? Many have recommended increased operator training or incentive programs as solutions, but those mechanisms can only work when leaders already see improved safety as a priority. More common are leaders who openly prioritize performance, leaving their operators and maintenance workers to make a personal choice between safety and productivity. Although safety can usually be deferred, disappointing productivity is guaranteed to have immediate, negative consequences. One can hardly blame them for cowing to the whip that hurts the most.

It stands to reason that near-miss reporting mechanisms are only as effective as the safety culture in which they're implemented. Using research in process safety, psychology, and human resources, this paper suggests methods for developing a culture of communication, trust, and respect between leaders and workers, resulting in an environment in which near-miss reporting is frequent, voluntary, and effective in creating safer conditions and behaviors.

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### **Introduction**

While acknowledging that near-miss reporting can play a prominent role in creating safety culture, this paper suggests that it's not a "one size fits all" solution and shouldn't be implemented until the relationships between leaders and workers have been assessed, including any tendencies towards distrust and cynicism. If those failings are found and fixed, improved communication will naturally follow, creating an environment in which near-miss reporting systems are more likely to succeed.

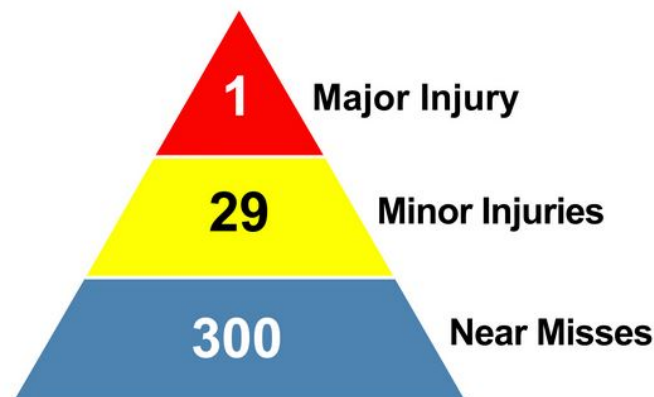
## What is a near miss and why report them?

There is no universally accepted definition of “near miss,” but most definitions contain the following elements (CCPS, 2011):

- an event occurs, or the discovery of a potentially unsafe situation
- the event or unsafe situation had reasonable potential to escalate
- the potential escalation would have led to adverse impacts

Although these are helpful guidelines, deciding what actually constitutes a near miss is generally left to individual organizations.

With or without a clear definition, process safety culture has come to take for granted that near-miss reporting, when done consistently, is the key to reducing injuries, illnesses and fatalities. In fact, it’s not even limited process safety – the fields of nursing, aviation, firefighting, law enforcement, and even casual pursuits like recreational cycling, have all studied near misses and agreed that they’re important to keep track of. Yet there are also many people who argue that Herbert William Heinrich’s 1931 “Accident Pyramid” (Fig. 1), upon which nearly all traditional near-miss theories are based, was bad science then and is simply inaccurate now (Johnson, 2011).



**Figure 1 - Heinrich's original accident ratio. Common critiques include his reliance on subjective observations and his tendency to blame workers instead of systems.**

If we don’t have a standard definition of a near miss and can’t even agree that reporting them is necessary, what evidence is there to convince companies that a near-miss reporting system is a worthwhile endeavor?

## What is near-miss reporting good for?

One of the major conclusions drawn from Heinrich’s pyramid (and the variations that have come after) is that there are supposed to be a certain number of near misses for every recordable incident within an organization; although Heinrich’s original ratio was 10 near misses for every

incident, modern studies have placed this number at between 50 and 100 (Bridges, 2012). According to this line of thinking, if you can just prevent those near misses from taking place, you can prevent the illnesses, injuries, and deaths that could have followed. It's an idea that sounds logical, even easy, on the surface, but trying to hit such a moving target is something that safety managers seem to be reluctant to sign up for.

Nobody can make them do it, either. OSHA's PSM standard requires reporting near misses, but only those related to potential hazardous material releases. Likewise, their recordkeeping rules require there to be a system through which employees can report illness and injuries, but they don't explicitly require reporting of near misses, which by their very nature don't necessarily result in injuries. They recommend near-miss reporting in their Illness and Injury Prevention and Voluntary Protection Programs and prohibit policies or procedures that disincentivize reporting, but anything beyond that is at the discretion of individual organizations. There are other standards, like ANSI Z10 and OHSAS 18001 (Z10's British counterpart), but they are also completely voluntary. Even if near-miss reporting were required, it would be completely unenforceable. How do you regulate the reporting of events that never happened?

This lack of compulsion is a bit of a double-edged sword. On the one hand, it gives companies the freedom to only implement a reporting system if they feel it's necessary and then customize it to their needs. On the other, it means that there is little standardized guidance available for companies that don't know where to start and nothing at all to compel those that could really use a reporting program, but don't want to spare the time or resources to create one from scratch.

Some organizations have the curiosity and resources to give near-miss reporting a shot, but most companies are left to see it in one of two ways:

**Pointless:** If a company already has a pretty good safety record and no one can make them implement a near-miss program, why would they? Even if there's a chance that it will improve their safety (which is, remember, already in a good state), a quick cost-benefit analysis will tell them that the cultural disruption and upfront costs of a new reporting program would be too much of an investment for such a small nudge forward. Chances are their safety is in such a good state because they already have a system for communicating safety issues, one that's well-suited for their particular industry and culture. It's not that such a company wants to be particularly unsafe, but they realize that their resources are finite and might be better used elsewhere.

**Intimidating:** In 2013, the petroleum, coal, chemical and plastics/rubber industries in the United States had nearly 47,000 recordable incidents (Bureau of Labor Statistics, 2014). Let's assume that the lowest modern estimate is correct and there are 50 near misses for every incident – that's more than 2.3 million near misses to be recorded and followed up on every year, without accounting for the groundwork it would take to get them reported in the first place.

Even if a given company only had 5 incidents per year and 250 near misses (and again, that's on the low end of the expectation), that kind of organizational change still amounts to an overhaul of a company's culture. If they're already struggling with other aspects of

safety, including problems that are actually regulated, asking them to go from the occasional near-miss report to potentially hundreds per year is going to seem like an impossible task. This company doesn't want to be unsafe either, but they've got much bigger things on their plate with consequences that are a lot more guaranteed.

### **Then why should a company want a near-miss reporting program at all?**

Despite all of its issues, there are a couple of ways that every company could benefit from a safety reporting program. As mentioned, near-miss reporting can be included as part of OSHA's Voluntary Protection Program, an initiative that allows companies to submit their safety practices for formal review in exchange for temporary immunity from regular inspections, as long as their status is maintained. This option is helpful, especially if companies know that they are reasonably close to meeting its standards – although at that point, they probably already have a good reporting system in place.

If a company doesn't feel ready for an OSHA review but wants to improve safety practices on their own, near-miss reporting can be a useful tool for tracking quantitative data, e.g. what kind of accidents happen most often, when they occur, etc. This data is a great way to find out how many problems they have and in what areas so the resources necessary for improvement can be justified.

### **But how does a company implement one?**

Here's where we get to the hard part:

The advice OSHA offers is superficial – an incentive program of safety committee t-shirts, “modest rewards,” and recognition parties. Other bodies, like the National Safety Council, have recommended involving individual employees, avoiding “blame culture,” and making near misses easier to report. These recommendations come with two major flaws:

1. They ignore the very unique dynamics of individual companies and sites;
2. They place the largest share of responsibility on a single group of people (either management or workers) without accounting for any of the complex social mechanisms that create unsafe environments and allow them to continue.

An organization can't be reduced to a group of individual actors. It's a system, an aggregate of “parts which cannot be meaningfully separated from each other” (D.C. Philips, 1972).

Take a single gear of an analog clock, for example. What can you tell by looking at it? What does its condition say about the rest of the clock? Can you use that gear to tell time? Asking a single group, either workers or management, to repair a safety culture by themselves is like asking that gear to wake you up for work in the morning. It's an unreasonable and unfair expectation.

### **That's great, but... how are trust and safety related?**

When investigating lapses in safety, we know to look for the root causes of the incident so we can prevent it from happening in the future. But what if the information we get from the investigation is inaccurate or incomplete? What if the information is never volunteered at all? Such is the classic struggle of near-miss reporting.

If information isn't given voluntarily, managers may assume that safety reporting has to be mandatory, perhaps requiring a certain number of near-miss reports per week/month/year to meet the expectations of a given safety pyramid (Bridges, 2012). It's a simple solution, but not necessarily a productive one.

Management theory tells us that a safety program can't rely on a mandate, either explicitly or implicitly, without workers inferring that their management doesn't trust them to determine unsafe conditions and report them. If employees perceive that they aren't trusted by their management, they then become distrusting in return, creating a stalemate in which no one trusts and no one progresses (McGregor, 1960; Morrison and Milliken, 2000). Therefore, the compulsion towards mandatory near-miss reporting can be seen as a symptom of a larger problem that has its roots in interpersonal relationships, not necessarily safety.

But if workers can be trusted to volunteer safety observations, why don't they? It's not because they want to be unsafe or create an unsafe environment. All workers want to know that they and their peers can perform as effectively, efficiently, and safely as possible within the constraints of a high-stress situation. So when unsafe conditions and near misses aren't reported, it's because the costs of reporting are perceived as outweighing the benefits. Whether or not this is true doesn't actually matter. When it comes to management practices in the workplace and how they're viewed by employees, perception is reality (Cornell University, 2011). In order for safety policies and procedures to be welcomed, accepted and acted upon, perceptions of distrust have to be repaired.

### **Trust: The basics**

Most of us can recognize trust when we feel it, but what is it exactly? Whitener et al. (1998) offer a three-part definition:

1. One party's belief that another party will act benevolently;
2. The willingness of one party to be vulnerable to another;
3. Voluntary dependency on another party to act in a trustworthy way

Interpersonal trust is, in its most basic form, a social exchange between two individuals, in which their personal tendencies to trust and their interactions over time either encourage or discourage their mutual perceptions of trustworthiness (Simpson, 2007). In the workplace, feelings of trust or distrust also lead to conclusions about a person's other qualities, such as fairness, reliability, competence, commitment, and goodwill.

When coworkers form groups, they tend to compound their individual feelings of trust or distrust by engaging in "collective sensemaking," a process of sharing information and experiences to form a group opinion of their working environment (Weick, et al. 2005). The products of

individual trust and collective sensemaking combine to create the behavior patterns within the groups of an organization. Those behavior patterns then form the organization's culture (Gillespie & Dietz, 2009), which strengthens over time (Morgeson and Hoffman, 1999).

Think about your organization: Do workers and middle managers react to new corporate initiatives with enthusiasm or do they immediately write them off? Is it clique-ish or do groups work with a shared sense of purpose? Although these behaviors are validated and perpetuated by group behavior, it's important to realize that they all originate on the individual level.

### **What causes distrust?**

Humans are incredible learners. From the time we're born, our brains are collecting information, storing it and using it as shortcuts to understanding the world. These shortcuts, known as schemas, allow us to use information and experiences to develop scripts, or assumptions about future experiences and the behavior they will require (Gioia and Poole, 1984). These scripts become more complex and organized throughout our lives (Fiske and Taylor, 1984), allowing us to grow our knowledge base and alter it as necessary.

In many ways, schemas and scripts make our lives easier. They allow us to "read" people and situations and more or less know what to expect from them and what kind of behavior is appropriate. We know, for instance, what a business meeting generally looks like - everyone sits around a table, makes formal chit-chat (weather, sports, etc.), and listens intently when the most senior employee begins to speak. The more often a script like this is validated, the more we perceive it to be true until eventually it becomes an expectation. Some scripts are common enough that they become conventional within a culture (interviewing for a job, standing in an elevator, talking to your boss), while others are more unique to each individual.

Just like individuals within a group share perceptions of trust or distrust, they also share their scripts, which then influence the group's perceptions, beliefs, and expectations of other groups and the individuals within them (Schein, 1985). Because group members are more likely to trust information from inside the group than from outside (Williams, 2007), the greater the number of group members who can confirm variations of a single experience, the stronger the overall perception will be.

It's in this way that small examples of perceived unfair or untrustworthy behavior can determine the disposition of one group towards another, regardless of who in the group actually experienced the behavior firsthand.

**Table 1**

<b>The Effects of Distrust: An Illustration</b>	
<b>Action</b>	A worker voluntarily reports a near miss to a member of management, fulfilling all the requirements of trust – in making themselves vulnerable to a higher-up, they are displaying their willingness to depend on the benevolence of that particular person.

<b>Response</b>	If that offering of trust is reciprocated with a punitive or blame-ridden response, the employee's behavioral script for "how to handle a near miss" has been altered. They no longer see that particular manager as a person with whom they can communicate safety information.
<b>Interpretation</b>	Furthermore, because the manager in question is both an individual <u>and</u> a member of a group ("management"), their action will now alter the employee's perception of management as a whole, reducing the likelihood that they will communicate safety information to <u>any</u> member of the group.
<b>Result #1</b>	The potential positive benefits of safety communication have been stifled by the immediate negative consequences from a single individual.
<b>Extrapolation</b>	When that worker returns to their group ("employees") and reports that their voluntary vulnerability hasn't paid off, the group will use the second-hand experience to inform their own behavioral scripts.
<b>Result #2</b>	The behavior of a single manager has caused an entire group of employees to view safety reporting as a risky proposition.

### **Better Safety Management Through Trust**

Traditional management wisdom says that leaders and managers should control their organizations by handing down instructions to subordinates without asking for feedback (Glauser, 1984). Likewise, if a manager's script already tells them that subordinates are lazy and can't be trusted to act in the organization's best interests, they come to believe that communication from below should be ignored and discouraged, especially if this script has been verified by other members of the "management" group (Morrison & Milliken, 2000). Although it's unrealistic to say that an organization's management can be solely responsible for trust repair, this unequal balance of power and tendency towards non-communication means that the process will work best when initiated from the top down.

Perceptions of trust are easy to destroy and difficult to rebuild, which means that leaders have to be very intentional and targeted in the ways they attempt to reform their organization's culture. Showing is more important than telling, doing is more important than demanding, and consistency is key. It's impossible to "un-ring the bell" of untrustworthy behavior, but it is possible to mitigate perceptions and improve them over time.

- **Demonstrating Priorities**

When making safety decisions, workers are being asked to evaluate safety against multiple other demands from both superiors and peers, including production, cooperation, and efficiency. Their challenge is to satisfy as many of those demands as possible within the time and resource constraints placed on them (Guy, 1990), which are among the strongest indicators of an organization's real priorities (Gillespie and Dietz, 2009).

Therefore, even if leaders say that safety is important, personnel will infer that it's not actually a priority until or unless the appropriate time and resources are made available. Even when workers prioritize safety for their own benefit, insufficient resources mean that they're forced to make decisions based on what is possible, not necessarily based on what is right.

When leaders show integrity in what they say ("safety is always important") and consistency in what they do (allocating resources to safety), employees view them as more trustworthy and are more willing to share information with them (Whitener et al., 1998). When leadership behavior is inconsistent or lacks integrity, employees collectively believe that their leaders are incompetent, unreliable, and incapable of positive change. This creates a culture of distrust, cynicism, and poor communication (DeCelles et al., 2013), all of which are roadblocks to organizational improvement.

- **Standardizing Priorities and Perceiving Them Accurately**

If safety is demonstrated and reinforced at a policy level, it then has to be equally demonstrated in the actions of all management and personnel. This means making sure that all employees, regardless of rank, consistently behave in a way that prioritizes safety so that it can become a cornerstone of the organization's culture (Guy, 1990). This congruence lends credibility to organizational improvement efforts (Kouzes and Posner, 2002), which means it should exist before improvements are even attempted. Without it, chances of successful culture reform are drastically reduced.

It's also important that each group accurately perceives which safety elements matter to other groups and why. Take, for example, Sharon Clarke's 1999 study on hierarchical safety perceptions. As could be expected, she found that workers, supervisors and managers think about safety improvement in different ways. More interesting, however, were the misperceptions she found each group had about the others:

1. Workers viewed themselves as prioritizing unsafe conditions and operational functions, but saw managers and supervisors as both prioritizing local management.
2. Supervisors said that managers placed less importance on quality working conditions than workers did.
3. Managers said workers didn't value local management or managerial decisions, and said supervisors didn't prioritize local management or working conditions.

It doesn't matter that the study proved most of these assumptions to be inaccurate. What matters is that they created stereotypes and scripts that directly affected how the groups interacted and what they expected from each other. With this small sample, we see how the divisions of group identities, when allowed to deepen, can create barriers to communication and trust.

**Table 2**

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<b>Trust and Safety Management in Practice: A Case Study</b>	
<p><i>Although solutions can't generally be copied and pasted from one company to another, we can learn a lot from looking at the causes of problems in other organizations.</i></p> <p><i>The following case study provides valuable insight into how distrust can affect communication and organizational change in a high-risk industry.</i></p>	
<b>The Study</b>	
<p>In 2009, researchers Gunningham and Sinclair studied Australian mining companies and documented their attempts to reform their health and safety programs at the instruction of corporate-level leaders. One company in particular exemplified a culture of distrust.</p> <p>This company held a strong “beyond compliance” corporate attitude towards safety, evident in their well-established OHS program, which included internal audits, an interactive OHS database, and a behavior-based safety observation program at all mine sites. It was found, however, that despite the strong top-down emphasis on safety, the program was not implemented successfully across the range of sites.</p> <p>After assessing 5 years’ worth of audit data, they found that the lowest-performing mine had nearly twice the number of safety incidents as the highest-performing mine. Through interviews with a range of managers and workers at each site, the researchers were able to attribute the disparities to three particular factors:</p>	
<p><b>Distrust between management and workers</b></p>	<ul style="list-style-type: none"> <li>• Workers stated they were unlikely to report incidents and discuss safety issues with management because they feared blame.</li> <li>• Workers were resistant to behavior-based safety programs because they did not trust the motives behind them.</li> <li>• Workers sometimes chose to dismiss safety procedures because they resented being told how to do their jobs.</li> <li>• These effects were the most prominent at mines that were geographically isolated and had experienced significant safety incidents and high management turnover.</li> </ul>
<p><b>Lapses in local implementation</b></p>	<ul style="list-style-type: none"> <li>• Low-level safety managers (all of whom were promoted from the internal workforce) had to straddle the line between management, who they ultimately had to report to, and workers, who they had to work with on a daily basis. Fearing worker backlash, they were reluctant to implement safety programs.</li> <li>• Managers reported receiving little support from their supervisors on safety decisions, particularly when the decisions would have an adverse effect on the mine’s production.</li> <li>• Managers reported an unwillingness to institute safety programs that would increase their workload while producing few obvious benefits.</li> </ul>

<p><b>“That’s not my job.”</b></p>	<ul style="list-style-type: none"> <li>• Safety managers were frustrated by the lack of cooperation from middle management, who viewed production as their core management responsibility, not the implementation of safety programs.</li> <li>• Middle managers resisted implementing safety programs as a way to retain autonomy and power within their mines, resulting in an impeded flow of information to safety managers and workers.</li> <li>• Much like the safety managers and workers below them, middle managers failed to prioritize a safety program because they perceived the costs as outweighing the immediate benefits.</li> </ul>
<p style="text-align: center;"><b>Conclusions</b></p>	
<ul style="list-style-type: none"> <li>• Staff at all levels of an organization have to believe that safety programs are being implemented for positive reasons, and they need to explicitly know what those reasons are.</li> <li>• Staff at all levels have to believe that their leaders and peers are committed to safety for benevolent reasons unrelated to control and oversight.</li> <li>• If workers are presented with competing values, they will follow the value they perceive to be most valid based on the behavior of leaders and peers.</li> </ul>	

- **Blame vs Respect**

In a culture of blame (exhibited in Tables 2 and 3), members of one group come to expect harm from members of another group and change their behavior accordingly, becoming defensive, avoidant, or just generally uncooperative (Williams, 2007). Because their trust is damaged, both groups view each other with suspicion and perceive their actions as incompetent and illegitimate. They’ve been burned once and they don’t want to be burned again, so they stop communicating and refuse to make themselves vulnerable.

On the other hand, if groups have accurate perceptions of one another and an open channel of communication, they come to feel respected and believe they can exchange ideas without reprisal. Because they feel respected, groups see their organization’s policies and procedures as fair, honest, and legitimate. As long as these values are in place, rule compliance is likely to be voluntary (Gunningham and Sinclair, 2007).

**Conclusion: Without trust, a voluntary reporting program will not succeed.**

If you have a near-miss program and it’s not working the way you want it to, your reporting program might not be the problem. Voluntary reporting between workers and leaders requires a high level of trust and communication, which means that all the incentives and mandates in the world won’t make up for a sub-par culture. If you don’t already have a near-miss program in place, you may not want to attempt one until you’re sure your organization is ready for it.

How do you know if your trust culture needs to be repaired? Do a quick, honest self-assessment and see if you recognize any of these signs of dysfunction:

- Attitudes of apathy and resignation
- Scapegoating and absence of accountability
- High stress and low morale
- Grudge-holding and back-biting
- Reluctance to communicate honestly, even in one-on-one situations
- Unreasonably high workloads and impossible expectations

If these symptoms are present and you feel like your safety program is suffering as a result, you may want to start by discussing your concerns with an independent third party. This can be a management consultant, or even just a colleague who is not directly involved with operations. The important thing is that they can objectively review your findings and help you see any additional problems you may have become blind to, without the conflict of interest that would arise from discussing it with someone who is impacted by production-related safety initiatives.

Once you've recognized the issues, you'll want to formulate a strategy for improvement. Who actually leads the effort will ultimately depend on your organization – some may find their culture so disagreeable that only a hired hand can reform it, while others may have a highly trusted, intuitive veteran on their staff who would be suited to the task.

After a strategy has been put in place, it's up to all members of the organization, from CEOs to operators, to play an active role in their own culture reform. It will probably be met with some wariness and skepticism. It may feel risky and uncomfortable for everyone involved. But until the effort is made, only one thing is certain – nothing will ever change.

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