Pre-accident investigations: an introduction to organizational safety

Whenever I was seventeen, I made a mistake that resulted in an unnecessary event that still makes my skin crawl to this day. I was cutting wood with my dad, and when I went to swing, I missed the wood and split the top of my foot open. While this wasn't my brightest moment, I learned a lot from it, and now I take extra precautions when I do something that could result in serious injury. Even though that was a personal event, there are many preventable and disastrous events that occur in the work place such as human error, equipment error, and the factors that help them occur, how workers should be aware of the factors of events happening, and how they should be trained and informed about safety regulations.

Human errors occur when companies improperly train employees, and when they get too comfortable when doing their work. Improper training occurs when companies don't take the time to train their employees properly on the job they're going to do. For example, in the book " Pre-Accident Investigations: An Introduction to Organizational Safety" by Todd Conklin, it talked about an incident where an employee failed to identify the differences between a propane tank and a Freon tank. This resulted in him drilling a five inch hole in a propane tank which could have resulted in an explosion at the site. This could have been prevented if the company would have taken the time to teach him the differences between the two tanks, and if they would have trained him right instead of throwing him out there because they did not want to deal with his terrible attitude.

Workers also tend to get comfortable with their jobs once they have done them for a while or don't think an event is possible with the work they do. One example from the book is an event in which a senior maintenance

technician with over twenty years of experience injured his hand while replacing a conveyor belt. While he was replacing it, he and his maintenance crew were beginning to become frustrated with the belt because it would not align, so they decided to remove the machine guarding in order to get the correct alignment. As the safety technician got to the top of the belt that was causing the most trouble, he decided to pull on the belt with all of his strength. When he did this, his hand got pulled between the belt and the belt rollers, which resulted in his right index finger being broken at the tip and his finger receiving seven stitches due to the belt lacerating his finger. No other worker on the crew and around the area attempted to stop him, even when they noticed his hand was on the belt, because they weren't aware of the potential of an accident. Also, the crew replaced the belt with the machine on instead of it being off like it was supposed to be, and the power was supposed to be locked and tagged out. However, the power was left unlocked, and the power was on so they could adjust the belts faster.

While workers can be to blame as the source of human error, we shouldn't be so quick to place the fault on them. Human error can occur on a larger, company level as opposed to the individual scale. Instead of blaming the workers for what they did, we should blame the way they were trained. When employers train new employees they're not going to have the time to train them on everything because it would be too time consuming. Next time an employer has a new employee they should train them as they did to everyone else, then train them on the most recent event that has occurred. When employees get blamed for something that happened, they tend to take it in a negative way. Once they get blamed, they become frustrated with

what happened and begin to dislike their jobs and the people they work with. They also begin to have a low motivation to go to work because they think they're just going to get chewed out again, which leads to them having an attitude, especially with safety managers. Once you blame an entire company, they look back upon what happened, take a look at their policies and procedures, and then decide whether or not they add something in or change it up. Remember, workers aren't the source of the event, they just commit an act that then kicks off the event.

Equipment error can occur from unsafe acts or conditions that can affect the performance of the equipment being used or from improper budgeting for the equipment. Examples of improper budgeting would be not having enough money for new equipment or unacceptable maintenance performed on equipment so it can perform properly and safely for the workers who are using it. For instance, there was an event that occurred with a B-737 plane crashing and catching on fire while trying to leave the runway from the Denver International Airport to George Bush International Airport in Houston. On the night of the event, the winds were reported to be as high as thirty-seven miles per hour. When the plane was about to take off, it hit a huge, strong gust of crosswind that resulted in the plane veering off to the left, and the pilot was not able to get the plane back under control. The pilot tried what he was taught to do if he lost control of a plane, but it did not help at all because that strong crosswind was well beyond his training and experience. Another factor that occurred was the unsafe act of adding winglets to the B-737 plane. When they added the winglets to the plane, they thought it would help increase the amount of knots the plane would be able to sustain, but

instead it decreased the plane's ability to withstand thirty-eight miles per hour of crosswind to thirty-five miles per hour.

In the book, it also talks about the sinking of the Titanic and the factors that helped the sinking of the ship. One factor that I took out was the how the ship was supposed to have forty-eight life boats on it, but, due to improper budgeting, they went ahead and reduced the amount of life boats to twenty. Due to that cut in lifeboats, it left the remaining lifeboats to hold only fifty-eight percent of passengers and crew on board. The White Star Line, which was the company that owned the Titanic, did not get in trouble because of the cuts because, back then, they met the laws and regulations that were in place. Another example of improper budgeting would be the incident I talked about earlier with the maintenance worker that got his hand injured with the conveyor belt. The company knew that the belt had not experienced any trouble before, so it would be the first time that the belt would be replaced after twenty years of constantly being on. Instead of them sending the maintenance crew in to work on it, they could have hired an outside party that had experience and knowledge about that belt and how to fix it. Instead, they chose the maintenance crew to work on it. This was a mistake because, as the crew was trying to fix it, they were learning at the same time, so they had no clue what they were doing and started to become frustrated with the belt. That frustration led to the worker injuring himself, and it could have resulted in him losing his life.

When it comes down to money, companies don't like to spend their money. It is wrong for companies to think like this because not having the proper equipment or using equipment that needs to be repaired is a safety hazard

to the person using it and the people around them. As a safety manager, the money should never come first. Employee's safety should always come first; you should watch employees as they do the work so you can make an educated guess on where the next event will occur. Once you have done that, take the one or two most important topics and talk about that in the next safety meeting you are conducting.

What is the main point of having rules in the work place? Of course, it's to make sure that everyone is doing their job right and not doing anything wrong because then it would just be chaos and no one would actually work or take anything seriously. Another reason is to ensure the work area and everyone working are being safe. Without rules and regulations, people would be getting hurt left and right in the work place and maybe even customers to. For instance, there was a maintenance worker that worked for a small carnival company that would go from county fair to county fair to find work because the company was experiencing a loss in customers due to bigger and better carnival companies. Other workers of the company realized that one of the biggest rides that gave them most of their money was starting to make a grinding noise, so they decided to have the maintenance worker come in and find out what the problem was and have the problem fixed. He didn't have time to examine everything, so he did what he could and left. When he was getting ready to go to bed, he couldn't sleep because he felt like there was something that was seriously wrong with the ride, so before the carnival opened for the day, he went to management and told them he felt something was wrong with the coupling. If they didn't do anything about it, the coupling would give way and throw riders forty

miles per hour across the fair at a height of twenty feet. He stopped the work because he felt something was unsafe, and sure enough, when the inspection team came down to take a look, they found that the two and a half inch steel axle in the transmission housing had been worn down to less than a quarter inch. If the worker had not used the " stop the work" rule, fifty people would have been seriously injured or killed that day, and the company would have gone out of business.

You might ask how we can make sure that everyone follows the rules and regulations that are put into place. The author, Todd Conklin, talks about how he has a friend that is a researcher, and after an event occurs with his experiments, he would have fellow researchers line up and tell him what they thought went wrong. He would then have a formal meeting to discuss what happened in the event, and ways that they can avoid from having the event, or similar events, happen again. They had training on how to prevent events from happening before they occurred instead of having an event happen and then trying and fix it. Another example I read was to have a meeting with workers doing a job that you are looking over. It's kind of like a job safety analysis you do, but instead of identifying hazards they see on the job they're about to do, they're writing about where they think the next event will occur. Once you have read what they have written down, you'll take the one that was most anticipated and have a discussion on what they think should be done to prevent the event from happening.

If we can get workers to work together as a team, then the chances of an event happening could be decreased. For example, in the book " Pre-Accident Investigations: An Introduction to Organizational Safety," it said

that, during a pre-job briefing, you should do a team building exercise to get them to work together. The exercise they used was to count from one to twenty-seven as efficiently as possible. The workers that did the exercise had a few restrictions, such as getting it done quickly, not having a pattern when counting, and not having two or more people speak at the same time. Even though they had to restart a few times, they eventually got it done. After the exercise, the instructor asked the workers what they just learned, and they talked about how they learned the importance of communication and teamwork. Some of them also said how they had to be careful and extra observant in order to get the exercise done. One thing that they pointed that was interesting was that the instructions that were given told the workers what not to do instead of what to do. If companies want employees to work better, and as a team, then they should be more detailed in the instructions that they give and not set the workers up to fail. With instructions that aren't detailed, employees can become frustrated with the work because they might not comprehend it to well so they won't know what to do. This can lead to other employees getting upset with one another, which can cause a negative work environment.

This book includes many different types of errors. These included improper training, workers getting too comfortable, improper budgeting, company oversight, and general rules and regulations of this industry. When Todd Conklin wrote this book, he wrote it for the people that want to pursue a career in safety and for people that are out in the safety field now, but need guidance or help with a certain situation that has risen at work. He wants us, as safety professionals, to ask why it happened instead of how it happened.

He also wants us to stop pointing the blame at other people and instead focus on what went wrong and how to prevent future events from happening. We can't just sit here and preach it though because it won't happen if we just say it. We have to actually do it by trying to break the old habits and bring in the new habits that are wanted to create a better work enviornment.

Bibliography

- Conklin, Todd. *Pre-Accident Investigations: an Introduction to Organizational Safety* . Ashgate, 2012.