Fall 12-1-2020

An Experiential Analysis of Job Site Safety: Delineating Between Positive Safety Culture and Excessive Safety

Steven Tighe
Indiana State University

An Experiential Analysis of Job Site Safety:

Delineating Between Positive Safety

Culture and Excessive Safety

A Thesis

Presented to

The College of Technology

Department of The Built Environment

Indiana State University

Terre Haute, Indiana

In Partial Fulfillment

of the Requirements for the Degree

M.A. Occupational Safety Management

---

by

Steven Tighe

December 2020

Keywords: Excessive, Safety, Construction, Risk, Assessment

COMMITTEE MEMBERS

Committee Chair: Ernest Sheldon, Ph.D

Professor, Built Environment Department

Indiana State University

Committee Member: Boris Blyukher, Ph.D

Professor, Built Environment Department

Indiana State University

Committee Member: Andrew Perry, MS

Instructor, Safety Management, Undergraduate Program Coordinator

Indiana State University

ABSTRACT

In general industry and in construction many safety requirements are mandated on job sites and in facilities. Many requirements move past simple compliance and enter the realm of cultural safety. This high level of cultural safety is what is typically the level most safety professionals strive for in any company. The balance is tipped to excessive when we move past the cultural safety into redundant or multi layers of requirements that affect production rates and have no actual value to safety but have the appearance of safety. This research looked into a large construction project that had multiple layers of safety professionals and multiple layers of redundant safety requirements. Some of the items reviewed were additional fall protection in scissor lifts, self-retracting utility knives, 100% PPE on site and other items above regulatory minimums. What was identified in the research was that if the hazard was high with potential catastrophic results, additional safety precautions were welcomed. If the perceived risk was low, it was viewed as a nuisance. Additionally, some redundant safety items significantly contributed to fatal incidents. The most important aspect of this paper is that true safety comes from a proper honest risk assessment and right sized mitigation of those hazards identified.

ACKNOWLEDGEMENTS

I would like to thank my committee member as a whole for all the work they have put into completing this with me! Dr Ernest Sheldon for his help with getting this thesis completed and through the process. His help and guidance through the entire master's program was appreciated and I value his experience. Dr Boris Blyukher was an exceptional professor with a vast amount of knowledge that he readily shared in many of my classes and his knowledge proved fruitful when I passed my CSP exam. Andrew Perry, I thank you for all the direct guidance you gave on this thesis. You helped turn this into reality that I had been struggling with for such a long time.

TABLE OF CONTENTS

TABLE OF CONTENTS CONT.

LIST OF TABLES

CHAPTER 1

INTRODUCTION

Employers in many fields have safety requirements that are mandated on job sites and in facilities. These requirements incorporate regulations, best practices and enter the realm of cultural safety. Cultural safety encompasses the policies, procedures, training, actions and attitudes that a company projects as seen by its employees. In the literature review in chapter 2 safety climate will be explained as to how it applies to this research. Climate is a snapshot of what a company's culture is at that moment. Trending data regarding climate helps give a clear picture of a company's culture. A high level of cultural safety is what is typically what most safety professionals strive for in any company. The balance is tipped to excessive when companies move past the cultural safety into redundant or multi layers of requirements that affect production rates and have no actual value to safety but have the appearance of safety. A simple example of this is a six-foot lanyard used on a personal fall arrest system when operating a scissor lift operating anywhere and specifically driving fully retracted. This PFAS would have no added protection due to the standard six-foot lanyard including employee height would have a total fall distance of fifteen feet and a scissor lift retracted is only five feet above the ground. This would increase project costs and not provide safety from impacting the ground for the employee. The researcher has evaluated if added layers of safety that many consider excessive do in fact enhance safety as shown in lagging indicators of safety. Lagging indicators would

include insurance rates, injury and illness rates along with Occupational Safety and Health Administration (OSHA) recordkeeping forms for example.

Definitions and Abbreviations

29CFR1910 – OSHA General Industry Standard

29CFR1926 – OSHA Construction Standard

ANSI – American National Standards Institute

ASTM – American Society for Testing and Materials International

HSE - Health, Safety and Environment

NFPA – National Fire Protection Association

OSHA – Occupational Safety and Health Administration

PFAS – Personal Fall Arrest System

PPE – Personal Protective Equipment

Need for the Study

The additional layers of safety required on many projects show a commitment in words to a positive safety culture as documented in policies and procedures. Observations on those projects or in those facilities gauges the climate of the workforce as compared to the stated site requirements. On sites that have a long-term positive safety climate they also show an overall positive safety culture. The basic question is at what point does a positive safety culture turn into an overbearing monster that serves no purpose and, in the end, adds excessive cost and hours without any return on investment? This can be skewed to say all safety is excessive. That statement is far from true. Many safety programs have led to significant decreases in incidents and reflected in lowering illness and injury rates. These programs far exceed simple regulation compliance and tend to be the models to strive for in many organizations. This study has been

looking at programs that go above and beyond that level. Some of these are when manufacturing facilities use General Industry regulations in a Construction project that is not on the manufacturing floor or facilities that add significant time to maintenance staff. Are these layers effective or just onerous on contractors and budgets? Do these practices show a quantitative change that can be shown statistically to improve safety when reviewing incident rates and/or injury rates? The researcher has defined these excessive procedures or practices more in the review of literature section to establish the basis for the statistical evaluation of the hypotheses.

Goal

The goal of this research is to identify if reactive safety policies for incidents is solved by instituting redundant or excessive safety rules, thereby increasing actual safety by reducing injuries.

Objectives

- Identify the scope of the problem
- Conduct a review of literature related to:
    - Cultural safety and safe job sites
    - What is excessive safety
    - Examples of redundant systems
    - Hazards associated with the redundancies
- Utilize a corporate a data collection tool to identify and evaluate the problem.
- Obtain data from the circulated corporate survey on a billion-dollar data center project with over 300 union electricians.
- Analyze and summarize the data from the survey.
- Publish and distribute the findings.

Hypothesis

Null Hypothesis

There is no statistically significant difference to implementing reactive safety policies and redundant safety procedures that go above effective cultural safety to reduce injuries on the identified construction project.

Alternative Hypothesis

There is a statistically significant difference to implementing reactive safety policies and redundant safety procedures that go above effective cultural safety to reduce injuries on the identified construction project.

Note: Cultural safety includes regulatory compliance, best practices utilized in industry, consensus standards, along with policies and procedures that are based on effective risk assessments.

Limitations

- The primary limitation in this study has been the absence of incidents and whether or not it had to do with the safety procedure or simply luck.
- The measurement on return of investment has been subjective in soft data as in number of injuries or property damage incidents can be defined but unreported near misses or employees unaware of hazards with exposures tend to be a challenge.
- Access to injury rates has been limited due to corporate security and confidentiality with private companies.
- This study was for construction on existing facilities that have multiple compliance regulations in play such as the Occupational Safety and Health Administrations (OSHA) 29CFR Parts 1910 and 1926.

- Independent confirmation of current culture and climate may be difficult, and the research data may have changed since reporting dates.
- Corporate structural changes were not able to be accounted for.

Delimitations

- The delimitations were focusing on the narrow scope, and the parameters in the data from long term high performing companies with a strong safety culture.
- The data was obtained from public records from OSHA and other sources available online or in the researcher's site data.

CHAPTER 2

REVIEW OF LITERATURE

To start this review, the researcher started by defining safety culture and discussing the use of a cultural snapshot defined by the safety climate. Ludwig (2018) states:

> Let's try this on for size: Safety culture is how people talk to each other and how that talking impacts safety behaviors.
>
> - Consider the employee telling another about a short cut to a task that involves risk -- the culture influences risk.
> - Consider a supervisor who emphasizes speed in getting a piece of equipment back online -- the culture influences risk.
> - Consider a leader who tells subordinates to push the equipment upgrades off for yet another year to save costs -- the culture influences risk.
> - Alternatively, when an employee takes a moment to alert another employee when they are taking a risk -- the culture influences safety.
> - When a supervisor asks his work team about the potential hazards in a job and discusses the safe behaviors that mitigate the hazards -- the culture influences safety.
> - When a leader asks his subordinates about the safety implications of budget decisions -- the culture influences safety. (para 5)

This is a great explanation of the abstract concept of safety culture. Utilizing this line of thinking culture is the backdrop of the day to day operations at a place of business. This explanation shows the way that culture is strengthened or weakened. It doesn't take much for a leader to destroy a good culture by losing sight of the company's safety goals. Many times, in order to make up for poor front-line management, layers of redundancy are added instead of training the front-line managers or removing them.

A way of looking at climate versus culture would be when doing a single audit, or a single perception survey. Both of these tools look at how a company is doing at that point in time. Both are exceptionally useful tools for corrective actions to be taken. To measure a company culture would be to review trending data showing how it handles incidents and positive growth or negative regression.

"The fuzziness of the culture concept and the unconscious nature of the basic assumptions make it difficult to influence culture directly. One way to approach culture change could be by looking at the related concept of climate, which describes the shared perceptions of organizational policies, practices, and procedures, both formal and informal." (Neilsen, 2014, p. 1 sec 1.2) An easy way to look at this would be if an injury incident happens, how does the company react. If the morale was poor and this incident reinforced the poor performance and managements' action was to blame the employee while not repairing or replacing the equipment that caused the injury, that would show a poor climate and culture. On the other hand, if the incident happened and employees responded as trained to handle the incident, had a debriefing or stand down to review the incident, performed a root cause analysis and took corrective action without a loss of morale and trust maintained between management and workforce, then this would be an example of a good culture with a negative climate event.

Culture and climate are manifestations of management commitment to safety. Climate may be able to be changed without management commitment and kept up in the short term, but it will never be able to be sustained without top management driving it. Culture can only be maintained and improved by management. Culture is long term trends that take active participation from management in allotting manpower and money. Without funding and staffing safety properly, no positive results can be sustained from the workforce only. In one study management was not committed to safety and was having significant problems meeting the legal compliance requirements. According to Neilsen's (2014) study:

> At baseline the pattern of results across artifacts and espoused values reflected that management was not committed to safety and no or very few resources were used on safety or external assistance, although safety problems were clearly evident and directly observable for anyone (e.g., fines from Work Environment Authorities). This point at the basic assumption being that safety is to be ignored (as productivity is more important). However, at the start of the study period, it was not possible to ignore safety issues any longer, as the accumulated enforcement notices and fines forced the company to spend resources on safety. What is interesting here, is how this cultural conflict (safety ignored >< not able to ignore safety) was handled.…the company could have paid external consultants to come and fix the specific problems that caused the enforcement notices and fines. Afterwards the company would then be able to go back to ignoring safety. However, that was not what happened. Instead the company questioned the governing value of ignoring safety. They used resources to identify the basic causes of the company's safety issues. The company then addressed these issues and tried to improve

> management commitment to safety, the economical priority of safety, and safety knowledge and skills. (para 1 sec 5.4)

This excerpt shows that in this study the company had a positive outcome when management fully commits to cultural safety changes. They internalized the problem and asked the basic questions of how and why the company is not in compliance, and how do they develop and maintain a strong positive safety culture. As they stated, they could have relied on a consultant, but that would not be in their best interest for the long term. They also found in the study that just placing anyone in the manager position without authority, budget, or managerial control, the effects would be limited and ignored as the production needs trumped safety. The change was to place a production manager in charge of safety with the CEO giving clear guidelines that safety must improve. This study forced a hard look at production procedures and made front line supervisors accountable for improving safety. This is a significant cultural change. It could be viewed at the time by some employees that this was excessive safety in the plant. The statement above that they had been cited by a regulatory body shows that there were some large deficiencies that employees could have accepted over time as typical and no longer considered them an unsafe condition. So, if this culture can be construed as excessive safety, how can it be defined?

Is there really a point when safety can be taken too far? Isn't it all about saving lives and eliminating injuries? How can that ever be a bad thing? The basis of the researcher's task is simple, when do rules about safety and policies or procedures go too far, that they no longer maintain true safety but only the appearance of safety. What specifically could be deemed as too much, and not actually change any outcomes in injury or illness rates or shortening to eliminating days away from work rates? When do the policies that are statistically ineffective

effect production and decrease morale, leading to a more unsafe culture? What is the line between return on investment for safety and wasted money?

A simple example of taking a good thing too far is drinking water. Everyone knows that water is needed for survival, and in hot weather, an increase in water consumption is required to maintain health and bodily function to continue working at a steady rate. Without the increased consumption of water work rates would decrease, health hazards would increase, and cognitive functions would decrease all as dehydration worsened. Can this drinking of water be a bad thing? Excessive consumption of water can lead to water intoxication and flushed electrolytes from the system, causing hyponatremia. Hyponatremia is a condition when sodium is flushed from the body, or diluted to the extreme without replacement. Sodium and other electrolyte replacement therapies have given rise to major economic powerhouses, like Gatorade and Powerade. Water intoxication is a condition where tissues swell trying to compensate for the lost electrolyte concentration and can cause cardiac arrythmias, fluid backup into the lungs, and pressure on the brain resulting in neurological effects mimicking alcohol intoxication. The increased pressure on the brain can have significant neurologic effects such as; seizures, coma, and death. Treatments can vary, but the major mitigating factor is stopping or significantly reducing water intake. Electrolyte replacement can be as simple as salt tablets or salty food being ingested or as invasive as pharmacological treatments with medications and intravenous therapies. According to Ribbe (2014):

> The increasing obsession with safety has the opposite effect of the one intended. As with a mother determined to keep her child from all pain, the actual result is greater danger, more harm, and less actual living and happiness.

1. Avoiding germs gives you a weak immune system

2. Mandatory safety standards often cost lives

3. The Government’s years-long drug approval process dooms terminal children (p.3)

This opens the door on discussing risk assessment. At what point does it start going too far and moving from safety to straying into harmful to the economy or society. What the researcher is looking to define is if companies were to mandate safety rules, no matter how insignificant, as long as it saves just one life then the rule was justified. In the late 1950’s an amendment to a law was added that stipulated if something has the ability to cause cancer it must not be used and therefore is banned. This amendment looks like a noble goal just trying to stop a chemical or industrial process that could have long term detrimental effects. Why not try for such an important goal? The problem is that, taken too far, it can cross from reasonable to irrational. One such example is the chemical Atrazine. This Atrazine is a carcinogen that has been shown to cause cancer in lab rats. That in itself would be enough to ban the use under the law. The problem that comes up is the scientific data. The lab rats were given so much of the chemical that it would take a normal human 208 years to get enough in their system to replicate the results. At that point is it truly toxic and carcinogenic? It may be harmful just not cancer causing in normally found concentrations. According to Ribbe (2014):

> If we're talking about 10 fatalities a year in a city of 100,000 people, it's one thing. If it's one death every 208 years, as in the case of Columbus and Atrazine, then I think most people would describe the rules as excessive. In the end, it becomes a game of risk assessment, a little like the one the environmentalists play. But risk assessment itself represents progress. It's a lot more sensible than simply drawing a line in the dust and saying, "Safety first! No compromises and no other priorities." There have to be other priorities. (p.7)

Risk assessment cannot be overlooked. If employers were to blindly state they wanted to eliminate all risk, what would they have to give up? OSHA regulations are written to a high level of safety but still would not always provide 100% safety. This level allows for some risk to be in play. This risk gives businesses the ability to develop new procedures and evolve while learning new ways to protect employees. The other part to that is that there are some industrial tasks and some construction activities that cannot be done 100% hazard free or exposure to the hazard free. This risk does mean that yes if you follow all OSHA laws you could still have someone get seriously hurt or killed. This inherent risk is where risk assessments come into play along with safety best practices. It is the safety professional that needs the flexibility to work on challenges, without strict defined rules when the rules do not apply. This risk is why many regulations are performance-based, meaning as long as nothing happens it was a safe practice. The worry that many business owners have is if they spend a significant amount of money on safety, do they truly get a return on investment or is just wasted money and lost productivity. Another example of this is Ribbe (2014):

> The urban scholar Roberta Brandes Gratz, who has carefully documented many of the unfortunate results of safety extremism in local planning, points out that they are not limited to traffic engineering. She cites, for example, fire codes that require a heavy fire wall separating retail space on the ground floor and apartments on the upper floor of two-story commercial buildings. Few older buildings have such a wall, and constructing one adds thousands of dollars to the cost of each upstairs residential unit. Recent studies suggest that similar protection is provided by the use of a sprinkler system, which most of the buildings do have. The net result of the rigid rule is massive amounts of upper-floor space that stands unused, because landlords can't afford to meet the code. (p.7)

It is commendable that as a society people try to protect the end users, such as the residential renters in the above apartments, but again at what cost. Fire sprinklers have been shown to significantly reduce deaths and property losses. What would be the need to retrofit an old building just because a code changed? At the time of construction, this would be an acceptable change and easily built into the project. After the fact, making changes could have significant impacts, both structurally and for space utilization. If the increase size of a wall or elimination of penetrations through the wall are required, it could lead to overloaded structural members requiring additional redesign and cost or eliminate an existing use currently permitted by law.

In the current pandemic, everyone is instructed to wash their hands and use hand sanitizers to prevent the spread of COVID 19. “Even Moderately Frequent Hand-Washing Increases the Risk of Dermatitis. That’s right, the frequent hand washing the germophobes and cootie-paranoids urge you to undergo not only weakens your immune system, but it actually harms your skin. In fact, scrubbing in general is harmful for skin, especially the famous “exfoliation”. (Ribbe, 2014, p.9) While hand washing is the number one way to reduce the transmission of the virus, too much can dry the skin causing it to crack and allow other microbials in that could cause additional harm. This issue shows that if taken to the extreme even something as benign as hand washing can have unintended consequences. As found with Ribbe (2014):

> The findings, reported in the journal “Nature”, support the so-called “hygiene hypothesis” – the theory that a lack of exposure to parasites, bacteria, and viruses in the developed world may lead to increased risk of diseases like allergies, asthma, and other disorders of the immune system. The results also suggest that exposure to some forms of

> bacteria might actually help prevent the onset of Type I diabetes, an autoimmune disease in which the patient's immune system launches an attack on cells in the pancreas that produce insulin. (p.10)

Many researchers have been looking into why diseases have grown as generations have evolved. Is the world population becoming weaker as they control more of their surrounding world? Are our natural defenses losing strength because they are not being challenged? The medical profession has become very good at treating many disease processes that used to kill many people and at extending life on people with debilitating aging processes or treating congenital defects in children. The thought of exposing people to potentially hazardous and harmful bacteria or other microbials is scary. What happens if they get sick or die? Legally, what are the ramifications? What is the risk to the entire population if they don't and a simple virus could wipe out an entire generation? These are the questions that must be asked when doing a risk assessment. What is the greater good? Philosophically, the theory of the greater good is important especially in the medical community. Vaccines are a great example; they protect millions but may have side effects seen in 1 out of every 10 or 100 thousand. Is the risk to that one-person worth risking millions? In recent years a rebellion has been seen against vaccines in the anti-vax movement. They are trying to say the one is greater than the many. Now, this risk gets into ethics and philosophy and therefore theoretical and abstract. It is a great way to look at the risk assessment for safety.

Researchers have been telling everyone for years that sunlight is good in moderation and to use sunblock every time they go out to limit their exposure to skin cancer. "Scientists are baffled by the results of a study published in the Feb. 2, 2005 issue of the Journal of the National Cancer Institute. In this study, they learned that exposure to sunlight actually

reduces the risk of skin cancer." (Ribbe, 2014, p.13) How is this reduction possible? People have been told by everyone for years to wear sunblock and there is a billion dollar a year industry supporting this. How can they be wrong? Another issue is staying inside and never getting out for exercise and fresh air. Obesity is a huge factor from a sedentary lifestyle that has many additional risks. But going outside has many risks also. Which is it do individuals stay inside and die of heart related diseases by protecting ourselves from skin cancer or traumatic events that can happen walking down the street? This is the basic quandary that is laid before those that are trying to eliminate all risk and make the safest environment possible. When does it cross over from safe to absurd? Everyone can accept that nobody wants adverse things to happen when it can be protected against. Everyone also can accept that for every risk there needs to be a reward, or the risk is not worth it. Again, big risk could mean big reward, or it could be just big risk without any reward. When it comes to investment in capital whether it is monetary or time, there has to be a return on that investment. "There is so much exaggerated safety outside of our work place; it's a wonder anybody even goes outside, government health officials, scientists and do gooders in our communities, tell us one thing, only to find that it is wrong later on, scare mongering is a way to get funding for studies, university programs and grants." (Ribbe, 2014, p.15) This exaggerated safety is much of why safety professionals need to push back and right size safety of our employees. Now that sounds odd saying that the safety professional needs to step back from enforcing safety. That's really not the case. The idea here is to make a proper risk assessment and implement all safe practices required to accomplish the task without an adverse result. This risk assessment is the balancing act of staying relevant and the correct amount of safety. If it is always on the excessive side many employees will lose buy in and

refuse the additional measures and start pulling back on even the important parts due to a loss of credibility in the safety profession.

Over the decades that OSHA has been in existence they have worked hard at reducing or eliminating hazards in the workplace whether they were real or perceived and taught many how to anticipate hazards with strategies of mitigating those hazards. With all that in place employers have reduced the number of injuries. What hasn't changed is that incidents are still happening at approximately the same rate but the injuries that do happen are increasing in severity. (Leemann 2016) How is that happening if injuries are decreasing and more people are acting safer along with employers have corrected many structural deficiencies that have enhanced safety in the workplace? According to Leemann (2016):

> Could it be that workers have developed a false sense of safety? In other words, the probability of getting hurt is vastly overshadowed by the belief that so much emphasis has been placed on safety that the likelihood one is going to get hurt is low to nonexistent. (para 3)

What was found is that the perception of safety reduced the fear of hazards and allowed for more risk taking. Fear is a good concept to be aware of when working in a hazardous environment. Employees check equipment more and stay more conscientious of what they are doing when the fear of the hazards are high. If smoke in a structure fire was not toxic or hazardous would a firefighter be that worried about their breathing equipment? For many their perception is their reality right up to the point when that reality comes crashing down. An example that highlights this point is using personal fall arrest systems in a scissor lift. Many industrial sites have mandated this as a secondary requirement that falls in line with the thought of being tied off every time the employee is above six feet off the ground as

required per the construction OSHA standards. On face value this is great, but the fall protection is already in place with the guardrails as prescribed by OSHA and the lift manufacturers. This secondary fall protection makes the user feel that they are safe to take more risks. Maybe they can stand on the rails, maybe add a work bench that they can stand on and lean over the rail to reach farther than they should. If they fall, they are protected right? Unfortunately, it doesn't work that way. One limitation to scissor lifts is the lateral loading characteristics. The lifts are strong up and down and are stable forward and backwards. Laterally, they are weak with a maximum load rating sideways of around 100 pounds as defined in Genie's Operator Manual on Scissor Lifts (Genie, 2006). Personal fall arrest systems typically use anchorages that are rated at 5000 pounds. This would have catastrophic results that a typical fall of 6 feet generates a 900-pound force, as defined in DBI Sala's Energy Absorbing Lanyard Manual (Sala, 2019), which is much greater than the stability rating at 100 pounds. The scenario for this to occur would be that an employee would need to violate the rules of climbing on the guardrails of the lift, then fall sideways out of the lift. This would have lateral loading on the lift along with downward force applied. According to Larson (2015):

> Recent research shows that in six scissor lift tip over accidents, the three users who were tethered to the lift died, whereas three users who weren't tethered survived. That's a small sample and doesn't account for many other factors that could have had an effect, but it is enough to make one think. (p.1)

The use of additional fall protection is still undecided on effectiveness by Industry and ANSI (NIOSH, 2020). What is necessary here is that the employees needs to evaluate the risk they are choosing to accept. Management needs to establish the rules, supervision has to enforce

the rules and employees must know why the rules are there and what's in it for them in following them. Employees have to be empowered to make the right choice even when managers are not looking. According to Jackson (2014):

> Creating a culture of commitment requires us to take a step back and look at the big picture. We need to ensure site leaders, organizational decisions, and processes and procedures are creating a value for safety. We also need to empower people to exercise good judgment. Focusing on the ways leaders can build a robust culture is the first step to developing an environment in which people not only follow the rules but live them. (p.2)

It's the commitment by all levels in the organization that makes the culture work and allows safety to actually flourish. Employers can hire employees anywhere that can be taught how to do something. What actually grows a company culture is teaching the why of how they do something. It's the understanding of why that allows employees to make proper choices when it comes to safety and to limit cutting corners.

When dealing with safety in the workplace the players are regulators, insurance companies, risk managers, workman's compensation, attorneys, and a litigious society. With all of these entities there are strong reasons to make the workplace safe. It is also easy to see with all that pressure that things can get out of control and safety rules can become overbearing. One evaluation from the United Kingdom was carried out by Lord Young of Graffham to see why there was such an overreach on regulations in low hazard workplaces. According to Lord Young (2011):

> Young was asked to carry out a survey of health and safety in response in part to the increasing publicity given to "health and safety gone mad" stories such as the restaurant,

> which banned toothpicks, and the contestants in a pancake race who were asked to walk and not run following rainfall. (p.1)

In his report, it was found that private safety consultants, insurance companies and personal injury attorneys had built an environment of fear that even office workers needed full scale risk assessments and safety programs. These risk assessments were having small businesses being burdened with unneeded costs and unnecessary safety programs. Lord Young also forced the private safety consultants to become registered through the governmental Health, Safety, and Environmental (HSE) program. This registration was to help control the overzealous consultants from scaring employers to spend large sums of money for no return on investment. He also eliminated the referral fees that were being paid to insurance companies from personal injury attorney's and streamlined claims procedures for insurance companies.

The reason it was necessary for Lord Young to review the regulations was for issues like this in the UK, "We asked one of our organizers why they had let the local press run the story, "Last year for bonfire, health and safety red tape threatens event!" when there was no problem in reality....the reply "it guarantees we sell all the tickets!"" (Hemple, 2016, p.2) This abuse of regulations for fear and notoriety are ways that safety loses credibility. This abuse fuels the fire that safety regulations are just to stop people from working, enjoying long standing traditions or companies staying in business. This abuse is where people hear these stories and start believing that any safety is too much. On the contrary, many of the rules and regulations are very necessary. Most of the OSHA regulations are written in blood, as in someone died to make the rule needed.

Now, what is important here is where does the line get drawn between safety that is right sized and that makes a difference versus too far? When do the rules and regulations cross the line

to be detrimental to the business function without a return on investment resulting in no further worker protection? Employers need to look at what is required for compliance first. That would be meeting all the pertinent rules and regulations from OSHA or one of the State Plan OSHAs. A clarification that needs to be made is just because an OSHA inspector made a site visit and no citations were issued at the time does not mean the company is in compliance with the laws. It may just mean on that day they didn't find the issue or workers were not working exposed to the deficiency. A proper safety and health program will meet or exceed all of the OSHA regulations. The way a company would exceed the OSHA regulations would be by the use of best practices that are effective and measured by the reduction of injuries with a tangible tracking method. This tracking may be by the use of special equipment, risk reduction by using contractors for tasks not deemed safe by their staff that are experts in that area or by policies and procedures that are more restrictive than OSHA, which has proven benefits. Where this research is going and trying to differentiate is when they go from best practice to loss of value with no return on investment. A properly defined safety and health program would start at the regulatory level. All programs need to meet OSHA's minimum depending on where they fall, whether it is 1910, 1926, 1915, and such. This would include ensuring all accident prevention programs, hazard assessments, Personal Protective Equipment (PPE) assessments and recordkeeping rules all fully implemented. Then, what would be required is any holes or gaps between regulations and what tasks are done on a particular work site would be filled with best practices found in American National Standards Institute (ANSI), American Society of Tool and Manufacturing Engineers (ASTME), National Fire Protection Association (NFPA) or other consensus standards that would fall into best practices. Next would be the beneficial rules that have measurable safety characteristics that would meet the General Duty Clause on tasks that have no regulation for, but

require employers to maintain the health and safety of its workforce. The General duty Clause: Section 5(a)(1) of the Occupational Safety and Health Act (the "**General Duty Clause**") (a) Each employer -- (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees. (OSHA, 1970) According to Sorensen (2018):

> Working conditions serve as a pathway from enterprise and workforce characteristics and effective policies, programs, and practices, to worker safety and health outcomes, as well as to more proximal outcomes such as health- related behaviors. Effective policies, programs, and practices may also contribute to improvements in enterprise outcomes such as turnover and health care costs. (p.3)

Many studies have shown that effective programs reduce costs and increase productivity. That is the goal of all work programs, leveraging health and safety to strengthen the company to achieve its mission and goals. In the research Kim (2016) found:

> The incidence of occupational injuries and diseases associated with industrialization has declined markedly following developments in science and technology, such as engineering controls, protective equipment, safer machinery and processes, and adherence to regulations and labor inspections. However, the decline in occupational injuries and diseases has only been minimal, leading to increased interest in health and safety management systems. Although the introduction of these systems has further reduced the incidence of occupational injuries and diseases, occupational safety and health management systems are not effective in workplaces with a poor safety culture. (para 1)

In the years since the development of OSHA they have seen the reduction of injuries. “Since the passage of the OSH Act, the rate of reported serious workplace injuries and illnesses has declined from 11 per 100 workers in 1972 to 3.6 per 100 workers in 2009” (OSHA, 2009). Improvements in processes and equipment have taken exposures away from employees. Our proper policies and procedures have enhanced safety and health management systems that builds strong employee buy-in thereby creating a positive safety culture. It is the safety culture that drives safe working employees when management is not around. So, what is needed for a good functioning safety and health management system is being in compliance with all local, state and federal laws, filling the gaps with consensus standards and best practices, and maintaining a positive safety culture. This positive safety culture would be what an ideal safe worksite would be. It also would be effective and not overly encumbering productivity or detracting from morale. On the other hand, a safety program left unchecked would add policies and procedures trying to eliminate 100% of any risk to the point of wasted dollars for no further advantage and no return on investment. This also decreases morale when the employee is always wrong, or safety uses new policies to suspend workers for relatively small infractions. Many of these types of safety professionals play the role of the cop without coaching, training, or guiding. Many times, it’s from inexperience or unwillingness to see the damage they are doing. “Education is essential for the development of positive attitudes of workers towards safety, especially when training is followed by active engagement of the workforce in organizational decision making for the development of safety rules” (Karinikas, 2018, p.257). A proper program uses all levels in the organization to enhance safety. Continuous education of all staff must happen for programs to evolve correctly. Investing in employees reap many benefits and promotes a positive work

environment. This positive environment will be more able to embrace change for the right reasons. In Karinikas (2018) it was stated:

> As Dekker pointed out, inadequate or inappropriate resources, such as time, knowledge, and tools, affect individual and organizational performance and contribute to the migration of companies into hazardous states and, possibly, unwanted outcomes. However, a competitive relationship between safety and production is not the only option if managers consider the dependency between these two objectives and perceive the necessity to establish an equilibrium. (p.258)

As discussed above, they are looking for that equilibrium. Without it, there is unchecked competition and both sides trying to outdo the other. This leaves the employees caught in the middle to be used as pawns for each side.

Another part to the improper roll out of new rules could have been due to an incident. "An easy arrangement response to an incident may be a hasty introduction or revision of rules and procedures, perhaps without consideration of the full practical implications. Such a response might have more to do with reinforcing the management's position, than with fully discharging their responsibilities for safety" (Mason, 1995, p.5). Many times, a safety manager is forced into a position to support upper management even if they are wrong or risk being fired. This forced position has played out time and time again in multiple areas of the industry. This reactive safety with knee jerk reactions lead to policies that are not well thought out and have little or no input from the employees. This reaction is how safety rules get put into place for no apparent reason to the employees. Since the rules were written in a vacuum away from employees, they are unable to do their jobs without violating those rules. According to Anjum (2018):

> Workplace bullying negatively impacts employees' mental health. Bullying includes criticism, blaming, social isolation, humiliation, joking, and excessive monitoring of an employee. Bullying is a situational and contextual factor that is not only limited to bosses as it can also be exerted by supervisors, managers, peers, subordinates, colleagues and anyone in the workplace (p.3 sec 2.4).

The excess monitoring of employees by the safety staff would fall into harassment. This excess could be in the form of continuous write ups due to management belief that something is always wrong, and if there are no write ups safety is not doing its job. It could be the false belief that people learn from negative reinforcement. The truth is, negative reinforcement, or more appropriately termed, discipline, leads to hiding more things from safety or management and not reporting anything unless caught.

Safety professionals fight the harassing and onerous regulatory enforcement as that is looked at as bullying. We strive to be consultants in a coaching manner. According to Johnson (2018):

> Mid-size and small companies with very limited safety budgets and few or any safety staffers still focus on what author Erik Hollnagel of the University of Southern Denmark calls "Safety - I" – command-and-control rules and compliance practices. Command and control and a sole focus on rules compliance has been the heart of many safety programs for a hundred years. This translates to: 1) workers are to be fixed; 2) workers are the problem; 3) tell workers what to do and what not to do. (para 4)

This old school philosophy is still very present in the profession. Many young or inexperienced safety professionals get caught up in this and hide their lack of knowledge or experience by hiding behind a rule without offering a solution. Many times, they have no solution and do not

fully understand the problem or how-to asses the problem to make an educated risk management decision. Worse than inexperience, is the manager thrown into safety that doesn't understand it, and automatically believes it is just a worker, that is lazy or trying to be a problem. This inexperience leads to more rules being made that workers do not understand and safety personnel enforce them rigidly. The problem is it makes doing the job task difficult, to near impossible while following the rules. Many times, it could have been fixed by spending a small amount of money and engineering out the hazard. The transition from safety cop to safety coach is hard for many people and industries.

Taking everything from above on safety and health systems, safety culture, safety philosophies and some discussion on a breaking point when safety goes too far, the researcher can get into what specifically they are looking for that crosses the line. According to Maurer (2013):

> Judy Agnew, senior vice president of safety solutions for Aubrey Daniels International, a management consultancy focused on performance management and behavior-based safety, argued that if you're relying on conventional workplace-safety methods such as incident rates, incentive programs and safety signs, then you're likely only "safe by accident." "At a time when recent workplace accidents have resulted in injury, death, and untold environmental and economic damage, we need to rethink our safety practices using science and proven systems, rather than questionable conventions," said Agnew, a thought leader in the fields of behavioral safety and performance management. (para 2-3)

This is a good starting point for that line of excess. There are mountains of data on best practices, compliance and structure. There are even more bad examples to review the pitfalls on good ideas that went wrong. The belief system that drives most of these off the rails is the do this or else

method. While it is important to have all employees show up to safety meetings and report incidents, it drives home the wrong message when discipline is added to those things. Why would an employee report anything when they will get in trouble for it?

There are reasons for watching our reported numbers such as injury rates, recordable incidents, days away from work, property damage incidents and near misses. These lagging indicators, indicators that change after something happens, are useful for trending data and showing where a company was. It also shows when reactive safety is in play. If all you do is base your program on lagging indicators, you are constantly bouncing from one fire to the next without actually doing anything. This wastes a significant amount of time and money. This money and time typically were never budgeted or included in a bid and will be deducted from profit margins. If left unchecked, it could eat the entire profit margin on a project. The way to correct this is to become proactive and work on leading indicators. Leading indicators are measurable things such as training, audits, supervisor training, closed loop feedback communication and other programs. This communication can start to eliminate the problem before it happens.

Incentive programs linked to injury rates have moved out of favor with OSHA and can actually be a citable offense if it actively works to decrease reporting. According to OSHA (2018):

> Rate-based incentive programs are also permissible under § 1904.35(b)(1)(iv) as long as they are not implemented in a manner that discourages reporting. Thus, if an employer takes a negative action against an employee under a rate-based incentive program, such as withholding a prize or bonus because of a reported injury, OSHA would not cite the

> employer under § 1904.35(b)(1)(iv) as long as the employer has implemented adequate precautions to ensure that employees feel free to report an injury or illness. (Para 2)

The clear-cut way to stay out of trouble with this is to not base incentives on injury rates or other lagging indicator numbers. It can be based on leading indicators provided it's not causing an under-reporting issue. They can use attendance to training, decreases in corrective action times, innovative ideas that increase productivity or safety morale and other such things. There have been many companies that have spent great sums of money on incentive programs that include tools, trips, cars, boats, and other entertainment items. All this did was exaggerate a program of not reporting incidents or hiding incidents so that employees didn't lose out. It also led to firing employees for small incidents that were actually out of their control.

Training programs are important to initially teach employees or to retrain when some time has passed, and they may not remember all the important procedures. Where these go wrong is when the training doesn't have readily applicable information or doesn't pertain to the workers present. Also, when the training is stagnant, and the same video gets played over and over with no new information, employees start to tune out the message and continue what they were doing. Another big part of the problem is when supervisors don't coach or enforce the training. Safety personnel are simply the gatekeepers to safety. Safety is done by the front-line employees and their immediate supervisors. If those supervisors and employees are not getting what they need from training, complete with questions answered, and the big part of what's in it for them, then they will need to adapt to what the training was trying to accomplish.

Signs are an important requirement to pass along information. Many are required by OSHA and others are a best practice by many consensus documents. Motivational signs are nice and help with driving culture when what is stated actually are the organizations beliefs, vision,

and goals. Where these go wrong is when the organization uses signs in place of fixing issues. A good example is a sign stating, “Our goal is to eliminate fall hazards”, near a guardrail that has been loose or damaged for months. One that everyone has heard is, “Safety is Our Number One Priority”. Actually, for businesses staying profitable and keeping the doors open safety is an important aspect of that. This will make employees scoff at superficial slogans without backing. Signs that work are ones that have data or trends on how well employees are doing or that significantly impact them.

Checklists are important reminders when looking at equipment or to jog your memory on processes. Too many checklists start to waste time and lead to pencil whipping them. Many inspection checklists get checked off too fast and issues never get reported. The other side is issues that have been reported from the checklists and nothing has been done about it with the employee expected to continue using the defective piece of equipment. This leads to employees not caring about the documents since they don’t really matter anyway. Another problem is trying to capture too much in the checklist that employees don’t use them. One big issue is redundant checklists. On one site, it has been the standard practice that a manlift inspection sheet is done every day as required, but then they have to have an additional green card to sign certifying they filled out the checklist that is right underneath the green card on the manlift. Employees understand the first checklist but feel the redundancy is a waste of their time.

The most detrimental item to safety is punishing mistakes. Companies all understand that employee misconduct cannot be condoned and must be regulated. The problem arises when you have a robust reporting program for near misses, property damage incidents, first aid issues and injuries, and can discipline employees for not reporting these then punishing them for the incident. This punishment may be in the form of a fault-finding Root Cause Analysis that

embarrasses the employee or company when conducted by owners or general contractors. This punishment may be in the form of management or safety personnel walking around looking to get the most write ups or mandating a quota system of write ups. Some safety professionals have been in competition with others on how many they can get and look for a way to suspend employees. This is a major way that employees resent safety staff and will not do anything asked and will even work directly against safety just to defy the manager. This type of mentality within the organization frustrates employees and leads to many other problems including absenteeism, poor quality, revolving doors on employees, and other damaging effects to a company. Accountability is important to an organization and must be maintained without its driving force, fear of discipline.

Near miss reporting is important and helpful in stopping near miss incidents from becoming injuries or fatal incidents. This is almost always a trainable moment that is timely and pertinent to the employee. Many times, a near miss is automatically assumed to be the employees' fault. "A near miss should be viewed as a failure of management, not the individual" (Maurer, 2013, para 20). When reviewing a near miss, first evaluate what piece of equipment wasn't provided, what hazard wasn't assessed, what engineering failure occurred, and then what training wasn't provided or lacked a transfer of knowledge. This makes near misses something to learn from and not something to punish. When stopping issues at the near miss level, it never gets to an injury or worse. This is the very reason why they must be evaluated and reported.

This research has discussed an arbitrary line so far on when safety becomes too much and detrimental to the greater good. Now, a more rigid location of that line needs to be established. According to Black & Neihaus, (1980):

> Any human activity involves some risk to life or health. Although it is possible to reduce the existing risk of a particular activity, it is not possible to reach the "zero risk" or "absolute safety" that is often demanded. Once this general fact is recognized, it then becomes necessary to define an acceptable level of risk. (p.40)

Risk can be looked at as; a hazard exists, the potential consequences from that hazard, the probabilities of an incident occurring, and the mitigating factors to the hazard. There are times in industries such as construction and mining where there may not be a safer alternative due to design or unforeseeable conditions. When there is no way to limit the risk, is it really necessary to do it? In this situation you could never be safe enough as the hazard and exposure are extreme. What the researcher is looked for is issues or problems that have solutions. “Three methods are most commonly used for determining an acceptable level of risk…, putting risks into perspective…, a comparison of risks and benefits of a set of alternatives…the more sophisticated approach of cost-effectiveness.” (Black & Neihaus 1980) Using any of these will give you a realistic look at what is gained and what is lost. Dealing with risk is a balancing act. The more risk you accept the less safety you have and the converse for more safety. The issue is, will more safety reduce injuries based on the money spent. “Safety expenditures generally follow an economic law of diminishing returns. The general relationship of this law…it is possible to reduce a relatively high risk to a much lower level at rather low additional costs. However, it becomes more and more expensive to reduce the risk even further.” (Black & Neihaus, 1980, p.40) In their study they found “Two main conclusions can be drawn:

> 1) the marginal cost of risk reduction increases with the level of safety achieved; and

> 2) for any given safety level, it is possible to reduce any existing risk even further; however, it is not possible to reduce the risk to zero." (Black & Neihaus,1980, p.40)

This is the part that the increased safety rules and expenditures are for. How can they get that number to zero? So, if it's not possible, why and what can they do to still reduce that area? This is when they get into the risk management strategy of As Low As Reasonably Possible (ALARP). ALARP looks at risk by evaluating what is being done, the technical or feasible way to mitigate the risk. If there is not a technical or feasible mitigation strategy, how can they get it as close to zero as possible within reason? Eventually, they get to the basic question when dealing with risk and cost; what is a human life worth? OSHA asks that question on every standard review for new regulations. What will the economic impact be if they stop injuries and fatalities? How many will it help? Will it be for the greater good to make a process safer without destroying the economic ability to be sustained? An example of this was when the Silica Standard was implemented, the overall economic impact per fatality was about $9 million (DOL, 2016). On the other hand, what is the monetary gain by saving the one life? That is much harder to put a number on as it is less tangible and more abstract. An example of this type of risk evaluation would include the consequence to be prevented, the way to do the task, the cost, and any consequences if nothing is done. An example to use here is using personal fall arrest systems on a scissor lift. What is trying to be prevented is falls from the lift. A guardrail, which is installed by the manufacturer and required by law, prevents the fall. What is the cost of additional protection? The lifts range in cost from a few thousand to tens of thousands of dollars. The PFAS costs can reach as high as $1000 per person, especially if the gear must be arc flash rated, additional to the lifts' cost. This could become expensive if there are a few hundred lifts on

a site. If the PFAS is not used with nothing additional done and the employee uses the lift as designed, trained and permitted to do, there are no consequences at all. What would the need to use the PFAS be? What has been stated is that they will blindly follow a policy that says employees must be tied off above 6 feet above a lower level, in construction. This is then just a waste of money for no benefit and allows for punishment, and documentation quotas to be utilized. This can become financially burdensome without a benefit for that burden. An example here is a deep-water shipping lock in upstate New York. The lock at high pool has a difference of 6 to 12 feet from the top of the wall to water level, depending on the lock and 45 to 50 feet at low pool from the top of the lock wall to the water level. When the lock is de-watered for construction and repair activity, it is about 80 feet. Not using an engineered system of fall protection has a significant fall hazard. Guardrails installed around the lock costing around $300,000 would then be warranted and expected. Due to this hazard and risk assessment the guardrails were installed. One notable issue with the guardrails was the hazard of damage from the ships. This was accomplished by setting the guardrails back 10 inches in the lock and 6 feet above and below the lock. The table below from (Black & Nehaus 1980, p47) explains this as well:

Table 1

Table 3: Comparison of marginal costs of risk reduction Ref. [6] with r_p (1 equivalent death/33 million dollars)

Safety Measure	Millions of dollars per life saved	(Millions of dollars per life saved) · r_p*
Automobile seat belts	0.3	0.01
Fire control in high-rise flats	40	1.21
50% flue-gas desulfurization for power plant with:		
30 metre stack	0.2	0.006
120 metre stack	2.5	0.03
Nuclear power plants with:**		
Recombiners	9	0.27
6 charcoal beds added	22	0.66
12 charcoal beds added+	150	4.5
Iodine treatment+	500	15.0

* A value greater than 1 0 indicates that the risk of providing safety is greater than the reduction in risk sought
** Based on 2 effects per 10^4 man-rem (fatal cancer plus serious genetic effects, all generations).
\+ Proposed, not implemented

This takes the risk analysis with risk and reward and numerically defines some examples. In the above table you will see that the return on investment is high gains in lives saved for seatbelts with low cost. Another good example from the table above is the power plant smokestacks. The 30-meter stack has a lower cost to high reward. The 120-meter stack has a much higher safety factor to the public but is more dangerous to construct. The last example to be used from the Black & Neihaus (1980) study on nuclear power plants is:

> Based on data from the Federal Republic of Germany it has been estimated that 1 equivalent death or 6000 equivalent lost man-days are caused during the construction and installation of safety equipment costing about $ 33 million. Thus, expenditures on safety

at marginal costs of risk reduction higher than $ 33 million per equivalent life saved would actually lead to an increase in risk. One might conclude that it had been made "too" safe. Furthermore, this expenditure implies that 1400 man-years of effort per equivalent life have been used for no net gain in safety. (p.49)

CHAPTER 3

METHODOLOGY

Goal

The goal of this research is to identify if reactive safety policies for incidents is solved by instituting redundant or excessive safety rules, thereby increasing actual safety by reducing injuries.

Objectives

Identify the Scope of the Problem

The methods the researcher used is first to explain what widely accepted cultural safety is and how that encompasses OSHA's minimum standards, the accepted best practices based on ANSI or manufacturers recommendations along with identifying what risk assessments mean.

Conduct a Review of Literature

In the literature review the standards, best practices and recommendations were identified. Cultural safety tends to be an abstract idea so the researcher did identify the abstract definitions and how it is applied specifically with a working definition to an active construction project. Standards refer to OSHA regulations with interpretations and Department of Labor information. Best practices are industry standards that have been shown to reduce injury rates. Manufacturer recommendations came from operators' manuals provided by the manufacturers. Further into the literature review the researcher drew the line that identifies where cultural safety ends and when it became excessive, no longer providing risk or injury reduction. Excessive has

been defined as redundant with no reduction of injuries or loss of production with no value or return on investment. The researcher reviewed safety procedures that increased due to extra site safety rules above OSHA minimums and commonly accepted best practices.

Redundant was defined as multiple levels of hazard mitigation on the same hazard identified in the same task. Redundant systems were identified through examples based on regulations and manufacturer instructions. An evaluation of the redundant systems or policies has been done. Those systems not based on a proper risk assessment that are a waste of money and time were evaluated. The literature review included an identification of redundancies that are more hazardous. Any specific stories found in the research was included in the review.

Utilize a Corporate Data Collection Tool to Identify and Evaluate the Problem

An existing corporate safety survey is currently being done regularly with good participation. That survey process has been utilized for data collection. This question, on excessive safety, is one that is important to estimating and managing large scale projects and was included in the circulated survey.

Obtain Data from the Circulated Corporate Survey on a Billion-Dollar Data Center Project with over 300 Union Electricians

This project is specific to a site in the central Midwest where 2,500 trade workers were on site each day. The project at the time of this survey is drawing down and the workforce has dwindled to 500 on site each day. This phase was for two years and is constructing one million square feet. The information obtained in this survey can be utilized in many other settings. Much of what had been evaluated is predominantly the same on all construction sites.

Analyze and Summarize the Data from the Survey

The raw data from that survey was included along with the summarized breakdown in a Likert Scale. Further statistical evaluations have been done as defined below.

Publish and Distribute the Findings

Once completed the findings and conclusions have been published and distributed.

Hypothesis

Null Hypothesis

There is no statistically significant difference to implementing reactive safety policies and redundant safety procedures that go above effective cultural safety to reduce injuries on the identified construction project.

Alternative Hypothesis

There is a statistically significant difference to implementing reactive safety policies and redundant safety procedures that go above effective cultural safety to reduce injuries on the identified construction project.

Note: Cultural safety includes regulatory compliance, best practices utilized in industry, consensus standards, along with policies and procedures that are based on effective risk assessments.

Statistical Techniques

The researcher utilized hypothesis testing through t-tests the statistical testing method technique used. The testing has looked at the hypothesis statistically in relation to the survey results to see if there were any significant differences in overall safety. The statistical difference evaluated was between the increase in safety by reduction in injuries due to additional policies

and procedures, or no changes that would be statistically significant based on additional policies or procedures.

Assumptions and Limitations of the Statistical Techniques

Assumptions

It is assumed that since the survey that was used is work related there was a slight lean positive on any management related questions and a slight lean negative on any change. The positive lean was due to assurances of anonymity, workers still are concerned about that. It was also assumed that with the aging workforce safety rules were routinely met with obstruction due to the belief it was interfering with production.

Limitations

The sample was verified by tossing outliers, such as multiple answers to the same question on the individual surveys and unreadable comments. This does mean the data required above 50% participation for accuracy. Bias and errors were controlled as much as possible through verified information and clearly worded survey questions. The results as reported needed to be statistically significant to clearly state yes or no and will need to be independently verifiable to derive a solid actionable conclusion.

CHAPTER 4

FINDINGS

The research was conducted with a large project site survey. A copy of the survey is below in Appendix A. The survey was given to 325 employees from the largest subcontractor on a billion-dollar data center project. The timing of the survey was at about ¾ completion, and the employees had gone through multiple changes on site adding additional safety measures each time an incident had occurred. 199 employees returned a completed anonymous survey. The sample consisted of union electricians from apprenticeship to journeyman level with a minimum of a few months' experience to over forty years. At the time of the survey the company had put in 900,000 hours worked without a lost time incident. There were 3 layers of safety on site; the company, the general contractor and the owner's staff. Each layer had at different times required additional safety rules above the current site rules and significantly higher than OSHA regulations. The survey attempted to identify if the additional requirements had any effect on safety on site. Attached to this in Appendix A are the comments submitted additionally to the survey scoring. The scoring below is the ratings on the Likert Scale and t testing for each question.

Table 2

Raw Data for Survey

Surveys Returned: 199 325 total employees on site 61%

Question	1-Strongly Agree	2-Agree	3-Neutral	4-Disagree	5-Strongly Disagree
Q1	1	2	3	4	5
3.32	26	24	50	56	43
Q2	1	2	3	4	5
3.2	22	43	43	54	36
Q3	1	2	3	4	5
2.3	42	87	48	13	9
Q4	1	2	3	4	5
3.79	11	14	37	80	57
Q5	1	2	3	4	5
2.97	30	43	52	42	28
Q6	1	2	3	4	5
3.63	7	18	62	66	45
Q7	1	2	3	4	5
3.57	8	26	47	80	37
Q8	1	2	3	4	5
3.96	4	15	27	90	61
Q9	1	2	3	4	5
2.54	33	70	55	26	10
Q10	1	2	3	4	5
4.07	8	8	20	82	73

Table 2 Cont.

Question	1-Strongly Agree	2-Agree	3-Neutral	4-Disagree	5-Strongly Disagree
Q11	1	2	3	4	5
3.05	21	41	61	50	21
Q12	1	2	3	4	5
4.46	4	5	8	59	119
Q13	1	2	3	4	5
3.61	6	16	61	75	35
Q14	1	2	3	4	5
3	15	40	79	35	18
Q15	1	2	3	4	5
2.18	42	93	46	9	4
Q16	1	2	3	4	5
2.69	19	76	57	28	13

Miller Electric Safety & Health Survey Results

Survey was passed out to 325 employees of Miller Electric on the Vandelay project in Council Bluffs Iowa. 199 employees turned one in all done anonymously in drop boxes or turned in with daily paperwork. A copy of the survey is included. Below are the questions with the ranked scores. The scoring was as follows: 1-Strongly Agree 2- Agree 3-Neutral 4- Disagree 5-Strongly Disagree.

1. The addition of fall protection harnesses and lanyards in scissor lifts increase Safety. **3.32**
2. Additional safety rules are helpful when accidents occur if existing rules being enforced would have stopped the accident. **3.20**

3. When entering permit required confined space the JHA is useful for additional information not documented in the confined space permit. **2.30**
4. Most safety rules are not needed due to “common sense” and years of experience. **3.79**
5. Written documented tool inspections are helpful in addition to my required daily visual tool inspections. **2.97**
6. Safety knives would have prevented cuts that I have received or witnessed. **3.63**
7. All hazards that created injuries can be engineered out. **3.57**
8. Proper training is not as important as years of experience and does not reduce injuries. **3.96**
9. Arc flash suits have protected employees when everything was locked out. **2.54**
10. Red danger tape is not needed when warning signs are posted. **4.07**
11. I feel safer on a job site when PPE is required 100% even without hazards present. **3.05**
12. Open visible trenches are easily identifiable hazards and don’t need barricades. **4.46**
13. None of the extra safety devices or rule have made me any safer than following the OSHA minimum requirement. **3.61**
14. I have seen serious or fatal accidents occur when following the minimum required safety rules. **3.00**
15. I always follow the safety rules. **2.18**
16. Change is hard when new policy and procedures come out. **2.69**

Numerical Hypothesis testing ŧ Tests

T-Test Formula

$t = (m-\mu)/(s/\sqrt{n})$

where,

m is the sample mean

n is the sample size

s is the sample standard deviation with n−1 degrees of freedom

μ is the theoretical mean

The p-value, corresponding to the absolute value of the t-test statistics (|t|), is computed for the degrees of freedom (df): df = n - 1.

Standard Deviation Formula

$$\sigma = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \mu)^2}$$

Question 1

t= (3.3216-3.32)/(1.299/√199) m = 3.3216 n = 199 s = 1.299 μ = 3.32

ŧ -value = 0.0173913 value of p = .493068 The result is not significant p < 0.05

Question 2

ŧ -value = 0.891296 value of p = .1869 The result is not significant p < 0.05

Question 3

ŧ -value = 0.232069 value of p = .40835 The result is not significant p < 0.05

Question 4

t -value = 1.816462 value of p = .035279 The result is significant p < 0.05

Question 5

t -value = 0.396932 value of p = .345908 The result is not significant p < 0.05

Question 6

t -value = 0.586499 value of p = .279046 The result is not significant p < 0.05

Question 7

t -value = 3.2307 value of p = .000723 The result is significant p < 0.05

Question 8

t -value = 1.199473 value of p = .115811 The result is not significant p < 0.05

Question 9

t -value = 0.468134 value of p = .320064 The result is not significant p < 0.05

Question 10

t -value = 1.20036 value of p = .115604 The result is not significant p < 0.05

Question 11

t -value = 0.887948 value of p = .187756 The result is not significant p < 0.05

Question 12

t -value = 0.241272 value of p = .404783 The result is not significant p < 0.05

Question 13

t -value = 0.056138 value of p = .477642 The result is not significant p < 0.05

Question 14

t -value = 0.134518 value of p = .446562 The result is not significant p < 0.05

Question 15

ŧ -value = -0.929961 value of p = .17675 The result is not significant $p < 0.05$

Question 16

ŧ -value = 0.73733 value of p = .230845 The result is not significant $p < 0.05$

Narrative

In the survey, many questions had comments that went along with the questions that gave more insight into the numerical answers. Question 1 started looking at a problem with scissor lifts. Is going above and beyond OSHA regulations wearing fall protection in scissor lifts helpful at reducing incidents? The sample showed disagreement on it increasing safety or reducing incidents. One respondent identified when the fall protection became tangled in the controls it killed an individual by crushing them. The other concern is simply that the manufacturers have rated the equipment to potentially fall over in a lateral loading situation that could be caused from climbing on the rails.

Questions 2, 4, 13, 14, 15, and 16 deal with new or additional rules implemented after incidents or above the basic site rules. OSHA requires every site to have a site-specific safety program. This site-specific safety plan is the basic minimum for every contactor on any work site. In question 2, the respondents results showed that the additional safety rules were not needed if simple enforcement of site rules would have occurred. This was a blanket statement question as most revised or additional rules had no effect on increasing safety. Typically, the incidents that had new procedures or rules would have been corrected with supervisory accountability. In question 4, the respondents results showed that the well-defined site safety rules are more important than employees claiming long term experience or “common sense” are all that’s needed to keep them safe. Proper training reduced incidents across the board in all

trades on site. In question 13, the respondent's results showed that best practices that are above OSHA are helpful to a safe work site. Best practices filled gaps or gave better guidance and did reduce incidents. In question 14, the respondent's results showed a neutral answer as most people have never been on a work site where a serious or fatal incident had occurred. This site had not had a work-related fatality in 10 years and over 1.5 million hours worked per year. In Question 15, the respondent's results showed a pretty typical answer that most people follow the existing site safety rules. Proper site safety rules with accountability reduces incidents. In Question 16, the respondent's results get to the heart of many issues. Change is hard for people so making changes (even needed changes) is difficult. Where that goes wrong is when the change is simply to add additional layers of perceived safety to give the appearance that something is being done but has no effect on outcomes.

Questions 3, 5, 6, 8, 9, 10, 11, and 12 are procedural. Question 3 deals with the higher hazards associated with permit required confined spaces and the respondents agree more safety is warranted as the hazards increase. Permit required confined spaces have killed many workers due to many hazards. Question 5 was additional documentation on hand and power tools. This was a minor inconvenience when tools were signed out of the tool cribs and it was a neutral answer. This would add a level of accountability, but no incidents had happened on site with broken tools. Question 6 was on the addition of self-retracting safety knives that were implemented after a recordable incident happened when an inexperienced pre-apprentice cut themselves with a utility knife. This was not the only laceration to occur on site from straight blades and utility knives. The sample disagreed that the self-retracting safety knives reduced injuries. The disagreement might have been strong; however, no further knife issues happened with the safety knives. Additional lacerations did happen with wire stripping straight knives that

could have potentially been avoided with the safety knives. Question 8 was on proper training. Throughout all trades in construction and many general industry trades employees will state that experience is the gold standard to reducing injuries. The Department of Labor Bureau of Labor Statistics' numbers and this survey do not agree with that. The respondents significantly agreed that proper training reduces injuries. Question 9 was on wearing arc flash suits during lock out procedures. Again, with the hazard being high extra protection is warranted and wanted by the respondents. On this site the electricians are dealing with 4000 amps on 480-volt systems and the hazard is extremely high for a fatal injury. In question 10 the respondent's results found that using warning signs alone without danger tape roping off a hazardous area strongly disagreed with using signs only. Incidents had happened on site from falling debris and the additional warning was warranted. Question 11 was on wearing PPE without hazards present. This is done by many companies both in construction and general industry. Most of the time, it's so companies do not have to constantly enforce the rules when a hazard exists and making it site policy eliminates the enforcement issues. The respondents disagreed that this made the job site any safer than only requiring it when a hazard was present. Question 12 was about additional markings and barricades for open trenches. The respondents strongly disagreed that it would increase safety. They felt an open visible hole or trench was enough of a warning. This is acceptable by OSHA: 1926.501(b)(7)(i) Each employee at the edge of an excavation 6 feet (1.8 m) or more in depth shall be protected from falling by guardrail systems, fences, or barricades when the excavations are not readily seen because of plant growth or other visual barrier.

Question 7 was more of an abstract question as it was a blanket statement that all hazards that created injuries could be engineered out. Specifically, in construction when things are being built hazards could definitely be engineered out to a greater extent if they were designed with

construction in mind by architects and engineers. The respondents strongly disagreed that all hazards could be engineered out. This disagreement was from experience and current building practices. While many safety experts agree they can engineer significantly more safety into construction, there will be times that PPE has to be used.

All but two questions had no statistical significance. The two questions that showed a statistically significant finding were questions 4 and 7. Both 4 and 7 dealt with assumptions and beliefs.

4. Most safety rules are not needed due to “common sense” and years of experience.
7. All hazards that created injuries can be engineered out.

These two questions leaned toward the alternate hypothesis until a closer review was made of each question. Upon evaluation of what each question was looking for they both proved a negative answer, which contradicted the alternate hypothesis. Question 4 qualified that safety rules are needed and validated the need for OSHA and other standard making bodies. Question 7 validated the known factor that some risk is involved with construction and cannot be avoided.

CHAPTER 5

CONCLUSIONS

The research failed to reject the null hypothesis. The null hypothesis was: There is no statistically significant difference utilizing what is deemed as excessive safety requirements to increase project or facility safety. The findings from the survey and experiences on this project have backed up the claim of the Null Hypothesis. There is no statistically significant difference utilizing what is deemed as excessive safety requirements to increase project or facility safety.

The literature review explained how OSHA compliance is required but leaves holes in most situations. Places of employment have adopted many safety practices above the minimum required by OSHA and have deemed them “best practices.” Companies that believe in safety have evolved their corporate culture to maximizing best practices and gaining employee buy in resulting in significantly safer job sites. None of this can truly be disputed as the overall reduction in fatalities and serious injuries in the workplace has gone dramatically down since the early 70’s when OSHA came into existence. Where this runs afoul is when additional rules are added for redundancy versus actual safety.

When employees were asked about redundant safety in scissor lifts, it was found that by following the rules for the safe operation of the lift and enforcement of site policies with proper training, falls that would have been prevented by wearing additional fall protection made no difference in incident reduction. Enforcement of site rules by front line supervisors and site management was found to eliminate most hazardous situations, and any rule made as a reaction

to an incident was not anymore successful at stopping incidents. In one respondent's comment, wearing the harness actually caused a fatality due to controls getting tangled up in the fall protection and crushing the employee against a higher level. In comments and evaluations, it was found that some of the rules were oversights in the safety and health management programs and were needed to close gaps that were identified. Most of the others were knee jerk reactions put in place to cover up what was really lacking in leadership.

Some items that in fact do reduce injuries such as the safety knives are rejected as too much safety. The issue with this is change, and as identified, change is difficult. If the safety knives were rolled out as a mandated requirement from the start, it would have had better acceptance from the workforce.

For other items that are perceived dangerous due to extreme hazards present or possibly present, the workforce accepts redundant safety rules and procedures. While electrical gear that had high voltages was locked out, it was still required to initially verify in full arc flash gear. Also, in permit required confined spaces the complete filling out of a Job Hazard Analysis (JHA) and a confined space permit were accepted. Another accepted practice is proper training, and updates on training regularly has shown to reduce injuries.

Redundant items that don't cost much and are very limited in additional time such as roping off an area while using warning signs when an overhead hazard is present had widespread acceptance. One noted difference was when a ground level hazard that is readily visible while walking around such as an open trench, it was felt that fencing that off was too much and not needed. The inference is that if its visible, the hazards are lower, and no additional warning is needed. Comparatively an out of sight hazard, such as overhead work, it is deemed a higher hazard.

One item of note that was a neutral answer was wearing PPE on site 100% of the time. The PPE that employees in the survey were wearing was hard hat, safety glasses, high visibility vests, safety toed boots, and ANSI rated cut level 3 gloves. The reason for this is to eliminate poor decision-making on the employees' part as to when to wear PPE. It also gives the general contractors an easier way to enforce compliance for a limited cost of time. It does however add a fair amount to the cost of the projects, but owners are willing to cover that versus potential citations and injuries.

The overabundance of respondents agreeing that hazard cannot fully be engineered out in construction underlines the need for risk assessments and the use of PPE. The key factor in where the line is to be drawn on when site safety policies and procedures go too far and when they don't go far enough is dependent on an effective and honest risk assessment. Proper training is as effective for safety professionals as it is for tradespeople. Knee-jerk reactions on new safety rules based on an incident tend to come from inexperienced or undertrained safety personnel pushed into a decision to show managers that they are doing something to show their value. The other side is managers that want action every time to show they are tough on rule breakers. Both do more harm to trust, morale, and overall safety by increasing underreporting and damaging a positive culture creating a negative safety culture.

REFERENCES

Anjum, A. (2018). An empirical study analyzing job productivity in toxic workplace environments. *International Journal of Environmental Research and Public Health*. file:///C:/Users/sjtig/Documents/ISU/699/New%20topic%20Thesis/ijerph-15-01035.pdf

Black, SC. and Neihaus, F. (1980). How safe is too safe. *International Atomic Energy Agency*. file:///C:/Users/sjtig/Documents/ISU/699/New%20topic%20Thesis/22102084050.pdf

DBI Sala. (2019). 3M DBI Sala energy absorbing lanyard manual. *Energy Absorbing Lanyard Manual*. multimedia.3m.com/mws/media/1415622O/3m-dbi-sala-energy-absorbing-lanyards-instruction-manual.pdf

DOL, OSHA.(2016). Federal register. *Federal Register 20160325B.* www.osha.gov/FedReg_osha_pdf/FED20160325B.pdf

Hemple, M. (2016). Sensible and proportionate health and safety risk management. *Calderdale MBC*, file:///C:/Users/sjtig/Documents/ISU/699/New%20topic%20Thesis/F-1044608348_Sensible%20Health%20and%20Safety%20%20Risk%20Management.pdf

Jackson, D. (2014). Safety leadership: why don't employees follow the rules. *Safety and Health Magazine.* file:///C:/Users/sjtig/Documents/ISU/699/New%20topic%20Thesis/Safety%20Leadership_%20Why%20don’t%20employees%20follow%20the%20rules_%20_%202014-02-24%20_%20Safety+Health%20Magazine.pdf

Johnson, D. (2018). Employee safety discipline ain't what it used to be. *ISHN*. file:///C:/Users/sjtig/Documents/ISU/699/New%20topic%20Thesis/Employee%20safety%20discipline%20ain't%20what%20it%20used%20to%20be%20_%202018-11-01%20_%20ISHN.pdf

Karanikas, N., et al. (2017, September 19). The balance between safety and productivity and its relationship with human factors and safety awareness and communication in aircraft manufacturing. *Safety and Health at Work.* Elsevier, www.sciencedirect.com/science/article/pii/S2093791117303074?via%3Dihub

Kim, Y. (2016). Creating a culture of prevention in occupational safety and health practice. *Redirecting.* dx.doi.org/10.1016/j.shaw.2016.02.002

Larson, M. (2015). Key to scissor safety: Training, not tie off: Lift and access. *Key to Scissor Safety: Training, Not Tie Off | Lift and Access*. www.liftandaccess.com/blog/key-scissor-safety-training-not-tie

Leemann, J. (2016). Why safety can be dangerous. *ISHN*. file:///C:/Users/sjtig/Documents/ISU/699/New%20topic%20Thesis/Why%20safety%20can%20be%20dangerous%20_%202016-04-01%20_%20ISHN.pdf.

Lifts, Genie. (2006). Genie operators manual. *Genie Operators Manuals*, manuals.gogenielift.com/operators/english/1000031.pdf.

Ludwig, T. (2018). Safety culture is a messy concept. *ISHN*. file:///C:/Users/sjtig/Documents/ISU/699/New%20topic%20Thesis/'Safety%20culture'%20is%20a%20messy%20concept%20_%202018-10-04%20_%20ISHN.pdf

Mason, S. (1995). Improving compliance with safety procedures reducing industrial violations. *Health and Safety Executive*. file:///C:/Users/sjtig/Documents/ISU/699/New%20topic%20Thesis/improvecompliance.pdf

Maurer, R. (2013). 7 safety practices that waste time and money. *SHRM Online*. file:///C:/Users/sjtig/Documents/ISU/699/New%20topic%20Thesis/7%20Safety%20Practices%20that%20Waste%20Time%20and%20Money.pdf

Neilsen, K. (2013). Improving safety culture through the health and safety organization. *Journal of Safety Research.* file:///C:/Users/sjtig/Documents/ISU/699/New%20topic%20Thesis/1-s2.0-S0022437513001552-main.pdf

Pan, C.S., Powers, J., Harris, J., Dong, R., Wu, J., Hartsell, J., Chiou, S., Keane, P., Cantis, D. (2020, September 2). *Fall prevention and protection for scissor lifts*. Centers for Disease Control and Prevention. www.cdc.gov/niosh/nioshtic-2/20039948.html

Occupational Safety and Health Administration. (1970). *OSH Act of 1970.* Occupational Safety and Health Administration, United States Department of Labor. www.osha.gov/laws-regs/oshact/section5-duties.

Occupational Safety and Health Administration. (2009). *Timeline.* Occupational Safety and Health Administration, United States Department of Labor. www.osha.gov/osha40/timeline.html.

Occupational Safety and Health Administration. (2018). *Clarification of OSHA's Position on Workplace Safety Incentive Programs and Post-Incident Drug Testing Under 29 C.F.R. §1904.35(b)(1)(Iv).* Occupational Safety and Health Administration, United States Department of Labor. www.osha.gov/laws-regs/standardinterpretations/2018-10-11.

Ribbe, P. (2014). When is safety too much safety? *When Is Safety Too Much Safety*, file:///C:/Users/sjtig/Documents/ISU/699/New%20topic%20Thesis/Too-Much-Safety-eBook-Rev-01.pdf

Sorensen, G., et al. (May 2018). Measuring best practices for workplace safety, health, and well-being: the workplace integrated safety and health assessment. *Journal of Occupational and Environmental Medicine*. U.S. National Library of Medicine. www.ncbi.nlm.nih.gov/pmc/articles/PMC5943154/

Young, Lord. (2011). Lord Young - common sense? *Lexology*. file:///C:/Users/sjtig/Documents/ISU/699/New%20topic%20Thesis/Lord%20Young%20-%20common%20sense_%20“Common%20sense,%20common%20safety”%20–%20a%20report%20by%20Lord%20Young%20of%20Graffham%20-%20Lexology.pdf

APPENDIX A: MILLER ELECTRIC SURVEY

Miller Electric Safety & Health Survey

(Potential Changes Not Being Considered)

Yrs/Mo. In Trade_____/_____ Shift_____

Area: 3C, Marcus (circle one)

Title: JW, App, CE, CW, Tech, LV APP, Cabler (circle one)

Please take a moment on each question, rate your response to scale provided, and provide honest feedback give as much details or examples possible.

We appreciate your comments.

1-Strongly Agree 2- Agree 3-Neutral 4- Disagree 5- Strongly Disagree

1) The addition of fall protection harnesses and lanyards in scissor lifts increase Safety:

1 2 3 4 5

2) Additional safety rules are helpful when accidents occur if existing rules being enforced would have stopped the accident: 1 2 3 4 5
3) When entering permit required confined space the JHA is useful for additional information not documented in the confined space permit: 1 2 3 4 5
4) Most safety rules are not needed due to "common sense" and years of experience:
   1 2 3 4 5
5) Written documented tool inspections are helpful in addition to my required daily visual tool inspections: 1 2 3 4 5
6) Safety knives would have prevented cuts that I have received or witnessed: 1 2 3 4 5
7) All hazards that created injuries can be engineered out: 1 2 3 4 5
8) Proper training is not as important as years of experience and does not reduce injuries:
   1 2 3 4 5
9) Arc flash suits have protected employees when everything was locked out:
   1 2 3 4 5
10) Red danger tape is not needed when warning signs are posted: 1 2 3 4 5
11) I feel safer on a job site when PPE is required 100% even without hazards present:
   1 2 3 4 5
12) Open visible trenches are easily identifiable hazards and don't need barricades: 1 2 3 4 5
13) None of the extra safety devices or rule have made me any safer than following the OSHA minimum requirement: 1 2 3 4 5
14) I have seen serious or fatal accidents occur when following the minimum required safety rules:
   1 2 3 4 5
15) I always follow the safety rules: 1 2 3 4 5

16) Change is hard when new policy and procedures come out: 1 2 3 4 5

Comments;_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX B: SURVEY COMMENTS

Comments, (1) 2008ish employe. Killed inspecting welds at Iatan Powerhouse when harness/Lanyard got tangled in ~~[illegible]~~ controler and crushed employee against steel beam on nightshift.

Comments, 1 - Pose their own risks/additional risks
2. rules first time
3 - JHA IS JUST A PIECE OF PAPER
4 - CAN'T FIX STUPID !!
5. IF VISUALLY INSPECTED AND IS BAD — WHY NEED TO WRITE IT DOWN — DON'T USE
7 - AGAIN CAN'T FIX STUPID — !!

16. Change is hard when new policy and procedures come out: 1 2 3 4 (5)

only b , doing one way

Comments, arness on Sissorlift Seems dumb to me and obstrues your movement
Need to get Consistent on 6 foot rule
big sign at Gate then Side by Side at turn style
We Should have Special trash Can for our plastic water bottles to be recycled.

Comments; extra PPE such as harnes in lifts just makes it harder to move around.

use a safety precaution before requiring others to do so

Comments; ple Have Natural instint not to get hurt formars t, Ive mean and only cair about self And production greatly increase: risk new and Young People in traid are scared and lost mean people take advantage and push these easy to go to work extre Hard. They them take credit

EVERY ONE SHOULD (STOP) If they feel like it Slow Down And take Your time. In the Rase of Rabit And Turtal the Tertel won Because He Went Slow And steady. The Rabit spent most of His Time standing arowd And not Doing Anything and whes The Rabit was giving it a Burt of Energy He was dangerious to Himself and others
Slow And Steady Wins the Rase

Comments; Please
We need more Safety Mask

Comments; - Training allows workers to Learn from other expereince
- Training is important, but cannot be soley tied to time in classroom
- Common Sense cannot be assumed, but Training does help get
ay not
Treat Symptoms ould of Been handled with foresight during more inclusive process.
- knee Jerk reactionary inplementation of tools or procedures may show were handling an issue, adress true Root causes or simply

Comments; Bring back incentive pay or better per diem

Comments The face masks are bullshit Covid has an extremely low transmission rate in Asymtomatic people

16. Change when new policy and procedures come out: 1 2 3 (4) 5
depends how asinine or ridiculous it is.

Comments; These masks are 100% useless and should be personal prefrence. Re-breathing CO^2 is not healthy and these masks force my body to do so. Revoke this asinine mask B/S immediately!

Comments; SAFETY SHOULD BE PERSONAL

TRYING TO BUILD THE CULTURE CONSTRUTION WORKERS THINK THEY ARE INVINSIBLE THATS WHAT GETS THEM INTO TROUBLE

I FEEL SAFE WORKING AT MILLER ELECTRIC.

#7

Comments, ENGINEERING AND ATTENTION TO DETAILS.

STOP

Comments, We practice safety daily. Where is the Safety Dinner for the reward to show that you "CARE"!!!

Comment, *[C S ** Q *<' Standard of "knee jerk Reactions" on this Site Mainly from WT Safety every time something doesn't go according to Plan.

The first thing they always want to do first is establish blame

A more bi-partisan approach needs handed down with a concern to get to the core issue at hand without emails being sent out to the world running names in the mud.

Comments; I witnessed a preventable death occure on a job site because Another trade was in a hurry and didnt follow proper Safety procedures. As a Tier and a Supervisor I make it my business to warn and or stop Someone I see committing

Comment Some of these questions seem a little on the subjective side. The most important aspect I feel is needed for a safe job site is a professional attitude and seriously caring about safety. Stay alert Stay active for yourself and for your other Brother's and Sister's. Thank-you.

20

Comments;
MORE TRAING FOR THE VIRUS- & INFORMATION OF PREVENTION

Comments; MEDICAL SAFETY IS VERY IMPORTANT AND CONTRACTOR/CLIENT NEEDS TO FOLLOW SAME THEY DON'T ALWAYS

Comments; Why is it that when there is a possible or positive Covid case that only certain personel are notified and guarentined, what about casual contact or coincidental contact, etc Lunch and break people, Tool Cribs, Material handlers sation in the hallway.

Obviously the Covid control mandates (social distancing, masks covering nose and Mouth, hand washing) are not really enforced!

Comments, just waiting for this job to end. Do my best to be safe but hard to be alert & happy at times.

Comments, The biggest issue I see, is that rules are changed for convenience. Multiple times safety has been bypassed or changed.

Comments, Derek from UT needs to go home It's a trouble maker & Drama master.

Comments; 100% Glove policy is a bit much! I Believe for mdfc for Insurance reasons than for safety. I agree the correct PPE for the job Im doing I dont think it needs to be worn 100% of the time.

I think the 100% policy on mask are good for people who are scared or have health issues. For all others its a nuisance more than anything. For some people its harder to breath with a mask on. When the outbreak first started we didnt wear them. I get it, it may help it may not!!

Comments; When "everything" is locked out, arc flash suits protect the electrician when he/she is testing/verifying absence of voltage.

100% full-time compliance with certain PPE items can violate common sense in certain situations. I feel hi-vis reflective shirts are WAY smarter than loose vests that can snag on things or become caught in moving parts. That being said having all those pockets are nice. I don't know...

Comments, IN THE YEARS I'VE BEEN IN THE TRADE, THE AMOUNT OF INJURIES I'VE HAD BY KNOCKING MY HARD HAT INTO OBSTACLES, WHICH I WOULD NOT HAVE HIT WITHOUT A HARD HAT, HAVE BEEN MANY TIMES MORE THAN BEING STRUCK BY A FALLING OBJECT.
AS A RESULT I NOW HAVE SERIOUS NECK ISSUES I WOULD NOT HAVE OTHERWISE HAD.

Comments; SAFETY LUNCH?