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Descriptive Research

Data Mining of OSHA summaries from 1984-2013

All of the data for this article is **preliminary**. The information contained herein is a direct result of reading, studying, and interpreting the information off of the OSHA investigation *summaries*. All summaries are readily available to the public as long as one has a summary number, inspection number, or a report or accident identification number. These inspection numbers were provided by another researcher who has meticulously collected information and paid for Freedom of Information Act requests for the industry fatalities since 1984 (Landa, 2014). This author looked up and mined data from the publicly available data. Currently, this author is in the process of ordering copies of every OSHA report dated 1984 to the present. Once those are obtained, a more meticulous survey of the data will be performed; each case will be read and information extrapolated to refine the preliminary findings in this short analysis.

Additional information on the procedure, coding, and the analysis of the data, please see the "White Paper" version of the paper in the other PDF.

Study Obstacles

The most significant obstacle encountered during this investigation was the OSHA summary content and/or the completeness of the summaries examined. Due to the sheer volume of information that is collected during a fatality investigation, one might expect a summary of the report to contain vital information. However in approximately 30 % of the summaries examined, there was very little information provided. For example, many of the summaries examined had little information (e.g., Employee #1 apparently leaned back, causing the cross member to come off the tower. Employee #1 slid off the member, falling 240 ft to the ground. He was killed").

While the actual OSHA report may have more information, the limited amount given on the summary forced the author to code several summaries as "fall – Climber Error," when in fact there may be clearer data within the whole OSHA report that could alter the coding data. Given this, it is possible the generalizability of the results could be limited.

1984-1998 versus 1999-2013

Was there a statistically significant difference in fatalities from 1984-1998 & from 1999-2013?

- 1984-1998 there were 131 deaths
- 1999-2013 there were 173 deaths
- At a desired confidence level of 95%, there is **not** a statistical difference in the two groups of deaths from 1984-2013 (t=0.576).

There are several reasons that there is no statistically significant difference

At first glance some people may think that the safety equipment should make a huge difference here, and because there is not such a huge difference that the safety advancements haven't made a difference. This is NOT true. There are variables that play into why we might not see a statistically significant difference in comparing these two groups. These might include but are obviously not limited to:

- There is MUCH more available work in telecommunications than in the first 15 year span.
- There are/may be many more "green hands" in the industry than in previous years.
- Subcontracting and pressurized deadlines by carriers (workers may work faster and more unsafely in order to make deadlines).
- Substandard or no training for technicians.

- Technicians with limited experience being asked to perform duties beyond the scope of their capabilities.
- Improper / poor equipment being provided by some employers.

Data 1984-2013 – Coded Reasons for Fatalities Based on OSHA Summaries Available to the Public (in lieu of full OSHA Reports (being requested).

302 death summaries were analyzed out of a possible 304 fatalities. Two fatalities were not placed into analysis due to missing data or data that was unclear.

Frequency out of 302 Possible Summaries – Factors in Fatality			sig @ .05
Improper Rigging	7	2.32%	.326
Free Climbing	3	1.0%	.523
Electrocution	12	3.9%	.194
**Fall – Climber Error	171	56.3%	.000
**Tower Collapse	31	10.2%	.031
**External Cause (true accident)	26	8.6%	.000
**Riding the Line	42	13.7%	.010
**Equipment Malfunction	10	3.3%	.000

***Denotes statistically significant*

It was possible the climber was NOT tied off properly	63.5%
It was possible the climber or crew was not properly using the equipment	70%
Defective Equipment	4.6%
Climber was riding the gin or headache ball	15.8%

Climber was “free climbing” (stated in OSHA summary)	0.3%

percent and count totals will not match 100%, as one case may have fallen into more than one category (e.g., several cases may have been coded a yes to both possibly not 100% tied off and Climber/Crew improperly using equipment).

OSHA FINES - DESCRIPTIVES

Average fine from OSHA (1984-2013) $6414.58

	Freq.	%
Zero $	66	21.7
.01 to 999	35	11.5
999$ to 1999	44	14.5
2000 to 2999	31	10.2
3000 to 3999	21	6.9
4000 to 4999	22	7.2
5000 to 5999	14	4.6
6000 to 6999	8	2.6
7000 to 7999	9	3.0
8000 to 8999	4	1.3
9000 to 9999	10	3.3
10,000 to 12,999	7	2.3
13,000 to 15,999	4	1.3
16,000 to 20,999	7	2.3
26,000 to 30,999	10	3.3
31,000 to 75,999	6	2.0
76,000 to 99,999	4	1.3
over 100,000	2	.7
Total	304	100.0

Fining is Complicated

When looking at the possible reasons for the fatalities extrapolated from the OSHA summaries, it is understandable that the number of fatalities that were likely due to climber or crew error would result in a fine of $0.00. If a fatality was in fact the fault of a climber or crew, no penalties would be issued against the employer. On the other hand, one could also make the argument that an employer should be fined even if it was the fault of the crew or climber, as the employer is responsible for creating a maintaining a safe work environment at all times. The reasoning behind fining the employer (even if the crew or climber were responsible) is that the employer did not have measures in place to ensure employees conducted the required workplace

safety guidelines, thus resulting in death. Although an employer cannot be responsible for monitoring all crews 100% of the time, they are expected to utilize PMs and foremen for this particular function, thus, an argument can be made that the ultimate responsibility does lie with the company owner.

Conversely, one can intelligently argue that an employer acts on good faith that the foremen will act accordingly on site and perform his or her job correctly; ensuring the safety of the crew in his or her charge. Unless reported by another crew member that the foreman is not acting in the interest of crew safety, it wouldn't be feasible to hold the company owner responsible for a fatality in this instance, and a fine against the company owner couldn't be justified. *However,* this latter argument is contingent on the company owner fostering a workplace culture in which employees feel free from retribution or unfair termination for reporting a supervisor for not ensuring the safety of the crew. One would hope that in such cases an OSHA investigator would address whether company employees feel duress for reporting a supervisor. If that investigator finds that a company owner's workplace is not conducive to employees reporting violations, or that the company culture is one that places undue pressure on employees and foremen to complete jobs under a pressurized deadlines, thereby causing employees to perform unsafely, one might argue that fining the employer would be justified even if the climber or crew were at fault.

One could argue that EVEN under the above scenario that ultimately the climber is responsible for his or her own safety, and should refuse to perform the work if they felt their life is being placed in jeopardy. Regardless of the point of view one may take regarding this, the dynamics of subcontracting, job performance, and company policies for completing jobs is complicated and laced with pressure from the carrier down to the boots on the ground. Thus

there has been a culture created within the telecom industry that places pressure upon the employee to complete the job "no matter what." It is NOT unreasonable to assume that climbers fear being fired and not being able to provide their families or for themselves personally, climbers will often feel pressured to take unnecessary risks.

Recommendations

Further examination into the subcontracting paradigm within the industry should be evaluated to determine what safety risks are created by utilizing the subcontracting model. There is much debate within the industry as to liability when a fatality occurs, who should be held responsible, and to what extent. There is a litany of research regarding subcontracting and safety in relation to industries such as construction, mining, and chemical and nuclear energy. Subcontracting, as a business mechanism, has many benefits to those that initiate the work, and rather poor consequences for those executing the work in the field; more often, those industries that implement a subcontracting paradigm are likely to see an increase in injuries and fatalities (Nunes, 2012; Mayhew & Quinlan, 1995; Ofori & Debrah, 1998). Given that this is the case it becomes even more pertinent an issue given the particularly dangerous nature of the work performed by telecommunications technicians.

Embedded within the subcontracting paradigm is also the concept of pressurized deadlines and what effect those deadlines have on safety, and ultimately on the fatality rate. When work is executed by a second, third, or fourth party, it is not unforeseeable that work might be delayed for various reasons. Empirical data needs to be collected from company owners, turf companies, and technicians to determine if the pressure emanating from those deadlines effect the execution of safety measures in the field.

Additionally, further study is needed in the effectiveness of training new telecommunication workers, and the effectiveness of the continuing education of climbers that have been in the industry for a number of years. In this author's opinion, empirical data should also be collected and measurable outcomes should be utilized to evaluate training components "train the trainer" programs as well as the new apprenticeship program that is to be adopted into the industry before the end of 2014. Creating a training system based on proficiency is crucial. Internal and external training sources must teach the same subject matter, but not necessarily in the same way. Adult learners are not taught in the same way that children are taught, so there will be some variation in the method of delivery; but the subject matter should be taught to the same level of proficiency. Proficiencies must be at the 80 percent level or higher; safety must be 100 percent proficiency. In addition, all evaluations must be objective.

Lastly, the use of substandard equipment or the lack of appropriate equipment should be addressed as a function of technician safety. Because employers are responsible for providing technicians the proper equipment, it is solely up to the employer to make sure the technician has safe and adequate fall protection. There is no streamlined method to ensure that all employees receive the same quality fall protection, or even every necessary component for fall protection. This is an area within the industry that needs attention sooner rather than later and it would be recommended that the organizations, advocates, carriers, turf vendors, technicians, and small business owners within the industry devise a mechanism for this to be addressed.

Conclusion

The examination of OSHA summary reports, while limited, has provided a small glimpse into the causes of fatalities within the telecommunications over the past thirty years, however, more data is needed to investigate more thoroughly. In understanding the underlying causes of

fatalities within the industry, it is more likely government officials, company owners, carriers, turf vendors, and technicians will be better equipped to find more effective strategies to contend with those reasons. Possible changes to the subcontracting paradigm, data collection, training methods, and programs to encourage lasting change should not be dismissed in as key elements in changing the safety culture within telecommunications. On the contrary, delegation of accountability, existing and emerging training and apprenticeship programs, and carrier, company, and climber responsibilities should be specific and measurable to the nature of work and shared openly among all stakeholders within the industry.