

Injuries and Fatalities Involving Powerlines Classified by the Type of Employer and Cause

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Abstract: A review of the 246 entries in the OSHA Accident database coded by OSHA as relating to “Powerlines” was conducted. In addition to reviewing the narrative summaries, FOIA requests were sent to the various OSHA regional offices to obtain the investigation files. Notably, OSHA also uses the keyword “Power line worker” and there were 1303 entries relating to that keyword string. Some, but not all of the entries coded as “Powerlines” also appeared in the “Power line Worker” records (OSHA investigations maybe coded with multiple keywords). The records coded as “Powerlines” included several accident scenarios but the most common injury was an electric shock or burn to persons who were performing some type of electrical work. While construction activities also constituted a large number of the powerline contact entries, tree trimming and other agricultural or forestry activities also accounted for a large number of the accidents as well. For each record, the NAICS or SIC code of the business that employed the worker was noted, as well as the OSHA standards for which any citations were issued were noted.

In terms of strategies to prevent reoccurrences of these accident scenarios, the most useful would appear to be adequate training in the recognition of electrical hazards for all workers, as well as thorough training for electrical workers in the safe work practices around powerlines, and adequate supervision to ensure that safe work practices are followed. Identifying the training gaps for the incidents involving non-electrical workers such as construction workers and tree trimmers is somewhat more difficult. In some cases, these incidences involved workers in bucket trucks or aerial lifts, and others involved workers working from or carrying conductive ladders. Finally, there was at least one instance in which a worker lost consciousness due to heat stress and subsequently contacted a powerline. A common thread through all the incidences is that workers are more likely to make errors resulting in powerline contact when they are fatigued and especially when they are suffering heat stress.

Keywords: Powerlines, OSHA Accident Database

1. Introduction

The Occupational Safety and Health Administration (OSHA) is given the task of developing and enforcing regulations to promote safe and healthful workplaces for American workers. As part of that effort, OSHA investigates certain workplace accidents. OSHA is required to investigate all workplace fatalities, and any other accidents which result in three or more workers being admitted to a hospital. OSHA makes available summaries of its investigations, including any citations resulting from the investigation on the public side of its website (OSHA, 2019). Recent changes to 29 CFR 1904 have broadened the categories of accidents for which OSHA must perform an investigation, but any accidents which resulted in workplace fatalities must still be investigated by OSHA. OSHA also codes each incident with one or more keywords, and provides a listing of investigations by keywords.

2. Method

For the present study, we reviewed the summaries for the 248 investigations coded by OSHA with the keyword “Powerlines”. In addition, we made FOIA requests to the various offices which had conducted the inspections to obtain additional available details regarding each incident. We then categorized each incident by industry classification (NAICS code) and year. The three most common employer classifications were Electrical and Utility Workers, Construction Workers and Tree Trimmers. Table 1 shows the number of incidents by year across all industry types from 2012 to 2018. It should be

noted that there is some delay between the occurrence of the incidences and the time that OSHA adds records to its publicly available database. The date of the most recent record coded as “Powerlines” in 2018 was October 11, 2018, so there may be additional records for incidences in 2018 yet to be entered. From past experience (Purswell, 2010), the authors are aware that there is sometimes a delay of up to 18 months between the occurrence an incident and the record appearing in the OSHA Accident database.

2. Results

As Table 1 below shows, there were 83 incidences in 2017 which were coded as “Powerlines”, which was more than double number for the preceding year as well as years 2012 to 2014.

Table 1. Number of “Powerlines” incidences by year

2018	26
2017	83
2016	35
2015	48
2014	22
2013	16
2012	15

The date of the earliest records with the keyword “powerlines” available on the publicly available OSHA Accident Database is 2011. It appears OSHA first began using the keyword “powerlines” in 2011. By comparison, a search for the keyword string “Powerline Worker” shows 1304 records dating from 1977. As Table 2 below shows, incidences involving persons employed by companies engaged in electrical power generation and/or distribution did account for quite a few records, but records we classified as “Construction” actually accounted for a slightly higher total. However, as described below, our classification of “Construction” also included demolition work as well as oil drilling activities.

Table 2. Records coded as “Powerlines” by year and by Employer Type

Year	Electrical/Utility	Construction	Tree Trimming/Agricultural
2018	12	7	7
2017	36	34	11
2016	8	17	8
2015	16	20	5
2014	7	11	3

As the reader will observe, there were a number of incidences which did not fall clearly into one of the three categories. These included a few in which a worker was working in an aerial lift or a bucket truck to perform tasks near power lines, and fell from the bucket or lift while doing so. As these instances demonstrate, a fall harness is only useful if it is attached to an anchor point. There was also an instance of person using a long (conductive) metal pole to dislodge some grain in a grain bin, and contacting a powerline when the person emerged from the grain bin. This last incident was categorized as “Tree Trimming/Agricultural”, but of course, dislodging grain with a long pole is a fairly distinct task from tree pruning.

3. Discussion

The instances of utility workers contacting powerlines were predominately cases of persons who should have been adequately trained to work safely around energized lines, but either did not follow their training or in some cases, were given tasks for which they did not yet have sufficient training. There was at least one instance in which an apprentice was assigned a task that he did not know how to perform safely yet without guidance and was injured when he attempted to complete the task. Most of these cases involved contact with exposed overhead lines, but there were also a few instances in which a telecommunications (cable TV) worker contacted an exposed conductor. There were also several instances in which a person employed either by a utility company or a construction company was attempting to trace an underground connection and unintentionally contacted a buried line.

The cases marked grouped as “Construction” included traditional construction, but also included painting and demolition, as well as a number of oil drilling operations. The “Tree trimming/Agricultural” category included both tree trimming operations as well as some instances in which agricultural workers were carrying conductive tools such as aluminum ladders or longer pruning tools and inadvertently contacted an overhead powerline. There also were some records which did not fit well into any of the three categories. In one instance, a telecommunications employee raised a mast in order to transmit a signal, but failed to verify that the area above the vehicle was free of powerlines. In another case, a police officer was struck by a vehicle while directing traffic around a downed power line. However, the distribution of accidents included in the “powerlines” category does validate the decision by OSHA to add the category in 2011, as there are quite a few records which did not involve employees performing any type of electrical connections or repairs that were nevertheless directly due to employees working in proximity to powerlines.

4. References

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