June 19, 1997

Nebraska FACE Investigation 97 NE006

SUBJECT:

Lineman Struck by Falling Power Pole

SUMMARY:

A 52-year-old lineman was killed when a power pole fell on him. A crew was in the process of retiring (taking out of service and removing) a power line. They had already cut down several poles prior to the incident pole. The poles were in rough terrain and a truck could not be driven to them to help facilitate removal. At the time of the incident the victim was approximately 22 feet downhill from the pole. The section of the pole that was cut off was 33 feet long. When the pole was cut it appeared to be falling in the direction of the victim and he ran up the hill. The pole actually fell in the direction he was running and struck the victim in the back.

The Nebraska Department of Labor investigator concluded that to prevent future similar occurrences:

* Employers and employees must ensure that all personnel are clear of the falling radius of any pole being cut down.

* Employers should develop written procedures for felling power poles.

* Employers and employees should ensure that all power lines are removed from poles prior to felling them.

PROGRAM OBJECTIVE:

The goal of the Fatality Assessment and Control Evaluation (FACE) workplace investigation is to prevent work-related deaths or injuries in the future by a study of the working environment, the worker, the task the worker was performing, the tools the worker was using, and the role of management in controlling how these factors interact.

This report is generated and distributed **solely** for the purpose of providing current, relevant education to employers, their employees and the community on methods to prevent occupational fatalities and injuries.

INTRODUCTION:

On April 29, 1997, at approximately 11:40 a.m., a 52-year-old journeyman lineman was killed when a power pole fell on him, striking him in the back. The Nebraska Department of Labor was notified of this fatality by the company experiencing the fatality on April 30, 1997. The Nebraska FACE investigator met with management and coworkers at the company office and then traveled to the incident site with management personnel on May 21, 1997. Interviews were conducted with witnesses to the incident on the morning of May 21, 1997.

The employer is a rural public power company that has been in business for 62 years. The company employs 28 people. This was the second fatality in the history of the company. The company has a part-time safety manager. The safety manager works full-time but has other primary duties. The company has a written safety program and an active Safety Committee.

The victim had been employed by this company for 30 years. He was well experienced in the task being performed at the time of the incident.

INVESTIGATION:

On the day of the incident, the victim started work around 7:30 a.m. A four-man team, which he was a member of, went to a pasture area to retire a power line that was no longer needed. Power was disconnected from the line to be retired and they began removing lines and poles. They removed a C-1 pole close to a road using a truck but the next three poles to be removed were in rough terrain that the truck could not get to. They cut down the first two C-1 poles and then proceeded to cut down the C-4 (incident) pole (see figure 1). A C-1 pole is one used to support lines when they are basically in a straight line and a C-4 pole is used when the lines change direction, such as at a corner. See figure 2 for the difference between a C-1 and a C-4 pole. The pole was 40 feet long and its' diameter ranged from 10 ½" at the base to 6" at the top. The weight of the pole was approximately 1,000 pounds. The pole was originally produced in 1971

and appeared to be in excellent shape. The section of the pole that was cut off was 33 feet long and probably weighed about 700 pounds.

A coworker notched the C-4 pole on the West side and cut it from the East side. When the pole began falling, it started falling towards the South. This was probably due to the way the pole was raked, slanting towards the South. The victim was standing approximately 22 feet Southwest and below the base of the C-4 pole and most likely when he saw the pole coming his way, he ran up the hill and to the East to avoid it.(see figure 3) The time of the incident was 11:40 a.m. The section of the pole that struck him was about 12 feet from the top of the pole. The wires from the C-1 pole that had just been cut down North of the C-4 pole were still attached to the C-4 pole. It is this investigator's assessment that when the pole began falling it changed directions and fell towards the East and struck the victim in the back. It probably changed directions toward the East when the wires from C-1, which were still attached to it, became taut and pulled the pole in that direction. It is probable that if the wires had been removed the pole would have continued falling South and the victim would have run clear of it.

One coworker called for emergency medical services and another coworker immediately ran to the victim and administered CPR. He was able to get the victim breathing and kept him breathing until emergency help arrived which was approximately 10-15 minutes. All the personnel at the incident site were trained in CPR. The victim died at 12:37 p.m.

CAUSE OF DEATH:

The cause of death as stated on the death certificate was cardiopulmonary arrest due to severe chest and neck trauma.

RECOMMENDATIONS/DISCUSSION:

Recommendation #1: **Employers and employees must ensure that all personnel are clear of the falling radius of any pole being cut down.**

Discussion: In this particular incident the victim was approximately 22 feet from the pole being cut down. The section of the pole which was cut off was 33 feet long. The only person in the falling radius of a pole being cut down should be the individual felling the pole. Recommend

all other personnel be at least twice the length of the pole away. For example if felling a 40 foot pole, personnel should be at least 80 feet from the base of the pole. There are requirements in 29 CFR 1910.266(h) for tree harvesting and manual felling. Although these requirements do not directly apply to felling power poles, the requirement for personnel to be no closer than two tree lengths away from a tree being felled is a good guideline for felling power poles also.

Recommendation #2: **Employers should develop written procedures for felling power poles.**

Discussion: Written procedures should be developed for felling power poles. Recommend a Job Hazard Analysis (JHA) be accomplished to determine all the hazards associated with felling power poles. A JHA booklet is included for your use. A copy of a NIOSH ALERT titled *Preventing Injuries and Deaths of Loggers* is also included. Some of the information in this alert can be applied to felling power poles.

Recommendation #3: **Employers and employees should ensure that all power lines are removed from poles prior to felling them.**

Discussion: Had the power lines been removed from the incident pole it most likely would not have changed directions once it began falling. Having lines removed or cut from the pole prior to felling should help insure poles fall in the direction they are intended to. In this incident the pole didn't fall in the direction it was notched, probably due to the way the pole was raked, but had the power lines been removed it probably would have continued falling South and the victim could have avoided it.

REFERENCES:

1. Office of the Federal Register, Code of Federal Regulation, Labor, 29 CFR, 1910.266. July 1, 1996.

2. NIOSH ALERT, Request for Assistance in Preventing Injuries and Deaths of Loggers. December 1994. DHHS (NIOSH) Publication No. 95-10