

LOL-HECO-IR-51

Ref: "HECO made a concerted effort to staff the LLM Division." (Exhibit 7, EDM Report, page B-10).

Question(s):

- a. Please provide chart(s) of the corporate structure of the LLM Division, its sub-divisions, who the Division reports to, who that entity reports to, all the way up the corporate ladder.
- b. What percentage of all transmission line maintenance work done by LW for the period 1990-96?
- c. Can LW be done in the early morning?
- d. Can LW be done at night?

HECO Response:

- a. A copy of the corporate structure of the LLM Division, as it was originally structured, is attached as page 4. The LLM Division was part of HECO's Distribution Department, under HECO's then Vice President, Operations. (The Distribution Department has since been reorganized into the Construction & Maintenance Department, under HECO's Vice President, Energy Delivery). Please note that the LLM Division has since been disbanded. The completion of the Waiiau-CIP lines in 1995 provided HECO with the flexibility to do the majority of the line work de-energized. Without the steady live line work needed to maintain the skill levels of HECO's live line workers, HECO decided to disband the group. If LW was required, HECO would contract out the LW work or retrain the HECO workforce.
- b. HECO's Construction & Maintenance Department does not have written records which distinguish whether maintenance tasks were performed on de-energized lines or using LW techniques. In the period from 1990 to 1996, it is estimated that anywhere from a few

percent to 10% of the overall 138kV transmission system maintenance activities were performed with the facilities energized.

- c. It is often dangerous, and usually impractical, to perform LW tasks in the early morning. Typically, most flashovers that are not caused by outside factors such as lightning occur early in the morning, when condensation on contaminated insulators can lead to flashovers.

In addition, the acquisition of tools and equipment, access to the site, mandatory safety meetings and preparation of riggings, are all time-consuming and, therefore, actual LW tasks are usually not done very early in the morning.

Aside from these factors, it is theoretically possible to perform LW activities in the early morning, as long as sufficient visibility (absence of fog) and sufficient lighting (artificial or natural) is provided. However, LW in the early morning is not very practical. There are increased risks associated with less than ideal lighting, and moisture in the form of condensation or dew that can be present in the early morning hours may often preclude or prevent safe LW.

It is also important to note that in low light conditions, helicopters cannot be safely used to support LW activities, except to deliver line crews and materials to a cleared, well-designated and well-lit (through artificial means) landing zone. In view of these hazards and the high costs to mitigate them, utilities do not use helicopters in less-than-sufficient lighting conditions. In addition, noise considerations could prevent the use of helicopters in the early morning hours.

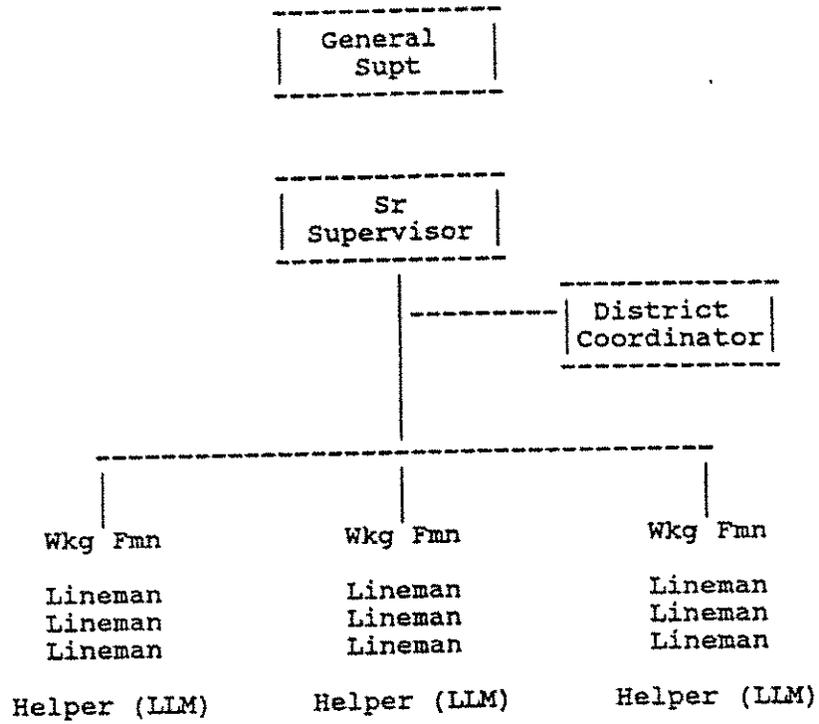
EDM is not aware of any utilities that would perform any LW tasks in the early morning hours or at night. Damage repair and restoration, for example, storm restoration work, could be undertaken at any time of day or night, but this work is usually mechanical

or structural in nature and would typically be performed on de-energized lines. This work would not be considered live work.

- d. It is theoretically possible to perform LW at night if sufficient artificial lighting is provided. However, some of the same challenges associated with performing LW in the early morning hours would apply to performing LW activities at night. There are increased risks associated with working in an environment with less than ideal lighting. It is also important to note that during the night, helicopters cannot be used to support LW activities, except to deliver line crews and materials to a cleared, well-designated and well-lit (through artificial means) landing zone. Human fatigue (of the helicopter pilot) and noise considerations also would prevent the use of helicopters at night.

See also the response to subpart c.

TRANSMISSION LIVE LINE MAINTENANCE  
ORGANIZATION



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