APPRENTICE LINEMAN

SUMMARY OF RESPONSIBILITIES: Under the supervision of the Electric Distribution Supervisor and Crew Foreman, constructs and maintains overhead and underground transmission and distribution power lines. Installs and maintains related equipment used to conduct electrical energy from generating stations through substations to customers.

ESSENTIAL JOB FUNCTIONS:

Same as the Electric Line Worker with the exception that the apprentice will learn the Electric Line Worker craft through a four-year apprentice program, which is a combination of academic work and on-the-job training. The on-the-job training will be as follows:

1. In the first six months of the year, if the apprentice has not had previous climbing experience, the period shall be devoted to learning the art of climbing up and down poles, towers, and fixtures; truck operations; materials; and construction standards.

2. In the remainder of the second six months, and in the second year, the apprentice shall work only voltage up to 600 volts, under the direction supervision and help of a journeyman.

3. In the first six months of the third year, the apprentice will be allowed to work on 7620 volt, single-phase line on congested poles, using gloves and insulated sticks. Special attention should be placed on the use of protective equipment and cover-ups. Apprentice shall not work on any voltage over 7620 volts. He/she may fuse or refuse any transformer of 50 KVA or less under the supervision of an Electric Line Worker. Special attention should be placed on the use of protective equipment and line jumpers in the transferring of energized deadends.

4. In second six months of the third year the apprentice may fuse or refuse all sizes and voltages of transformers and single-phase and three-phase laterals under the supervision of an Electric Line Worker.

5. In the fourth year, the apprentice should learn to use hot stick equipment on all voltages, and rubber gloves and sleeves on all types of distribution work up to 15 kV. The apprentice may assist in all types of line construction and distribution under the supervision of Electric Distribution Supervisor, Electric Line Crew Foreman or Electric Line Worker. The foreman and apprentice should always take into consideration the progress and ability of the apprentice when assigning jobs. The apprentice should develop safe working habits all through his apprenticeship. The apprentice should become familiar with the functions and operation of the different line equipment and apparatus, such as voltage regulators, capacitors, transformer banks and their hook-up, etc.

Must possess an effective working knowledge of the functions of an Electric Line Worker including, but not necessarily limited to, the following:

1. Must have an understanding of various transformer connections, capacitors, and voltage regulators and their purposes.

2. Must have adequate experience to safely perform work on energized lines up to and including 15 kV with the use of rubber gloves and sleeves.

3. Must have a good working knowledge of the use of hot line tools (including the mechanical and electrical capabilities) preferably up to and including transmission voltages.

4. Must understand and be able to use primary phasing equipment
APPRENTICE LINEMAN (CONT.)

5. Must have experience in installing underground lines, making up terminators, elbows, etc., and operating equipment to install and test underground lines.

6. Must be able to work at high elevations using climbing tools, platforms, ladders, or other aerial methods.

7. Must be dependable due to the nature of the duties of the position. Must possess the ability and skill to use electric line tools and equipment. Must possess the ability to identify problems that require immediate attention. Must have good oral and written skills. Must possess good mechanical aptitude and understanding of electrical power systems.

EDUCATION: High school graduate or equivalent is required. High school courses in electrical subjects preferred. Vocational school or some college training is highly desirable. Exceptional experience may be considered in lieu of vocational or college training.

EXPERIENCE: One year of outside construction experience is desirable. Previous work experience with electrical systems preferred. Must be able to obtain a Commercial Class B Driver's License (CDL).

WORKING CONDITIONS: Works outside in all types of weather. Requires a large amount of climbing, walking, and working from a standing position.

NOTE: Will be tested on mechanical aptitude, basic electricity, basic math, and basic hand tools and equipment. Must be willing to work overtime during peak periods and emergencies.

ADVANCEMENT CRITERIA: Upon completion of each year’s apprenticeship training, apprentice shall be evaluated and if recommended by the foreman and system manager, the apprentice shall be advanced accordingly.

SUMMARY OF PHYSICAL DEMANDS
• Successfully perform the activities detailed in the attached entitled, “Job Evaluation – Apprentice Lineman”
• See with near acuity, far acuity, depth perception, accommodation, color vision and field vision
• Hearing proficient

Revised 08.08
**JOB EVALUATION**

Name of Company: Carthage Water & Electric Plant          Date: 6-13-06

Position: Apprentice Lineman

<table>
<thead>
<tr>
<th>Task</th>
<th>Occasionally (1%-33%)</th>
<th>Frequently (34%-66%)</th>
<th>Constantly (67%-100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standing</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walking</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sitting</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reclining</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change of Position</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reaching</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(extended hands/arm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reach across Midline</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handling</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(hold, grasp, seize, turn)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fingering</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(pinch/Pick)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(perceive attributes of objects)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crouching/Squatting</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(bend legs/spine)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crawling</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balancing</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stooping</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(bend at waist)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kneeling</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jumping</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stairs</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scaffolding</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## JOB EVALUATION (Cont.): Apprentice Lineman

<table>
<thead>
<tr>
<th>Task</th>
<th>Occasionally (1%-33%)</th>
<th>Frequently (34%-66%)</th>
<th>Constantly (67%-100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ramp</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pole</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In/Out of Machine</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ladder</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MACHINE CONTROL OPERATION

<table>
<thead>
<tr>
<th>Task</th>
<th>Occasional (1%-33%)</th>
<th>Frequently (34%-66%)</th>
<th>Constantly (67%-100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm/Hand</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leg/Foot</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simple Grasp (grasp lightly)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm Grasp (use pressure/force)</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fine Manipulation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the following graph write in how much weight the individual will be lifting in each category.

<table>
<thead>
<tr>
<th>Task</th>
<th>Occasionally (1%-33%)</th>
<th>Frequently (34%-66%)</th>
<th>Constantly (67%-100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifting/Lowering</td>
<td>Reemer, Chain saw, Jack hammer, Steel, Cross arm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carrying</td>
<td>Reemer, Chain saw, Jack hammer, Steel, Cross arm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pushing/Pulling (force exerted)</td>
<td>Transformer, Pulling secondary service wire</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

JOB EVALUATION (Cont.): Apprentice Lineman
**Heavy Work** (Level 4) – Exerting 50 to 100 pounds of force occasionally, and/or 25 to 50 pounds of force frequently, and/or 10 to 20 pounds of force constantly.

Forces Required:

1. **Lifting/lowering:**
   a. Reemer: 75 lbs for 30 seconds 1 time a month.
   b. Chain saw: 10 lbs 2-3 times a month.
   c. Jackhammer: 100 lbs of force to lift off ground and 100-150 lbs to lift out of truck.
   d. 4-inch rigid steel: 54 lbs of force to lift one end with other end on ground 1 time a month.
   e. Cross arm with bolts: 40-60 lbs of force to lift off ground 4-5 times a month.

2. **Carrying:**
   a. Reemer: 75-100 lbs for 30 seconds 1 time a month.
   b. Chain saw: 10 lbs 2-3 times a month.
   c. Jackhammer: 100 lbs of force to lift off ground and 100-150 lbs to lift out of truck.
   d. 4-inch rigid steel: 54 lbs of force to lift one end with other end on ground 1 time a month.
   e. Cross arm with bolts: 40-60 lbs of force to lift off ground 4-5 times a month.

3. **Pushing/pulling:**
   a. Transformer: 80-90 lbs to tilt and roll large transformer. Largest transformer is moved with equipment.

Recommendations:

1. Use a secondary underground puller that is automated to avoid 100 lbs of force when pulling wire manually in ditch.

Positive Aspects:

1. Using assistive devices and 2 people with forces close to 100 lbs.

Provided By: Industrial Physical Therapy, Inc.
Contact: Neil Yust, PT, CEAS
417-673-0600