

# Ergonomic Evaluation Report of Findings

## **Brief Company Description**

NG is an international aerospace government contracting company located in California, with 120,00 employees world-wide. The Southern California division is a research and development facility with 1,400 employees. Within this location is a prototype development lab that builds Power Distribution Control (PDC) Units, which enables the unmanned aircraft to be controlled from the ground.

## **Employee Information**

**Employee:** Pam

**Job Title:** Technician

**Length of Time on the Job:** 15 years

**Job Tasks:** Build and test electrical circuits for the PDC Units

**Job Task Difficulty:** Described by the employee as low stress during normal and overtime hours

**Job Schedule and Breaks:** The job is a 9-hour a day position with scheduled breaks in the morning and afternoon in addition to a 30-minute lunch break. The employee rarely works over time and then it is at her discretion

## **Data Collection**

The employee was interviewed and observed performing her work tasks in the prototype development lab. The evaluation was videotaped with the permission of the manager and employee.

## **Purpose of the Evaluation**

To determine the relationship of risk factors to potential injuries while building and testing electrical boards.

## **Evaluation Findings and Identification of Risk Factors and Recommendations**

The ACS Z365 Proactive Job Survey form (see attached) was used to evaluate the risks inherent in the current job tasks. Major risk identified in the process:

1. Right hand power grasp holding wire stripper in a sustained hand position
2. Repetitive movement of the right thumb
3. Sustained holding of wires with the fingers of the left hand
4. Neck in a forward, bent position

## **Job Specifications Building PDC Units**

Height of workbench: 36 inches

Hours a day job is performed: 4 to 6 hours

Length of job: intermittent and variable throughout the day

Maximum number of wires stripped per minute: 30 wires

Right hand power grasp of wire stripper: 5 to 6 pounds of pressure as measured with a Jamar hand dynamometer

***Risk Factor #1: Grasping of the wire stripper with the right hand up to 4 hours a day***

**Recommendations:**

1. Task rotation to decrease the amount of time grasping the wire stripper
2. Rotate the left and right hands to strip wires
3. Use an automatic wire stripper when possible
4. Warm up and stretching exercises of the fingers, hands, and wrists prior to beginning work and throughout the day
5. Encourage taking regular scheduled breaks

***Risk Factor #2: Right thumb extends in a backward movement when stripping wires***

**Recommendations:**

1. Task rotation to decrease the incidence of a repetitive motion injury to the thumb
2. Rotate left and right hands to strip wires
3. Use an automatic wire stripper when possible
4. Warm up and stretching exercises of the fingers, hands, and wrists prior to beginning work and throughout the day
5. Encourage taking regular scheduled breaks

***Risk Factor #3: Neck is bent forward while viewing wires through a magnifying glass up to 4 hours a day***

**Recommendations:**

1. Task rotation to other jobs that do not require working with the neck in a flexed position
2. Warm up and stretching exercises of the neck prior to beginning work and throughout the day
3. Encourage taking regular scheduled breaks

**Summary:**

There is a high potential for a cumulative trauma injury to the hand, wrist, and shoulder due to the repetitions required and the number of hours per day the task is performed. The employee states she has learned to break up her job tasks to avoid stripping wires up to 4 hours at a time. She has also learned to strip wires with her left hand. The automatic wire stripper can only be used when working outside of the PDC Units. Scheduled breaks are adhered to during normal working hours and when over-time is required. Stretching exercises for the hands and upper extremities would be beneficial in reducing over-use injuries.

**Outcome:**

Survey results were reviewed with the manager and employee. It was suggested that stretching exercises before and during work hours would be beneficial in reducing the potential for cumulative trauma injuries. The manager was receptive to learning more about stretching and how these exercises could be incorporated into the workday. The employee was agreeable to the changes stating she was concerned about injury to her hands and wrists.

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Date