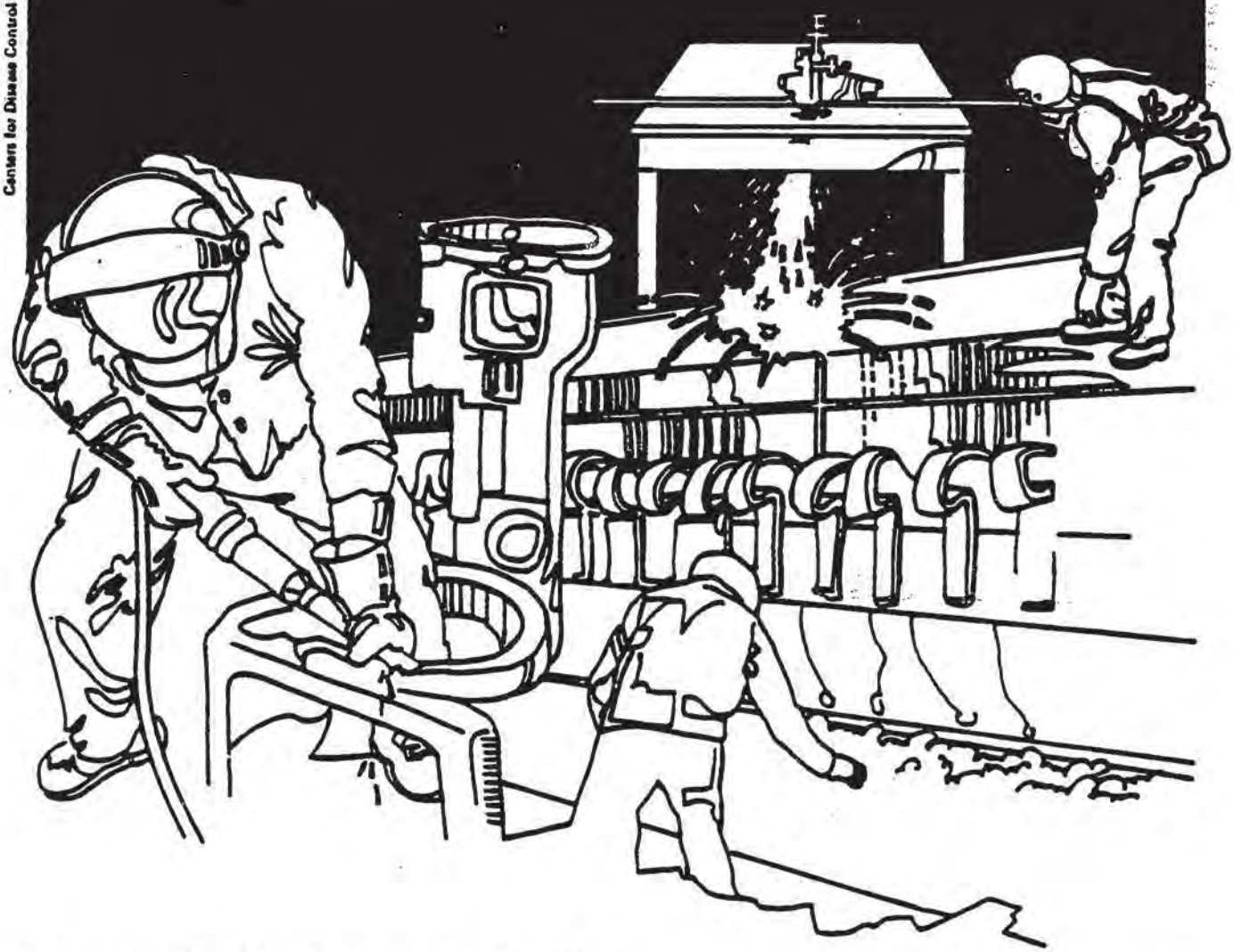
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES ■ Public Health Service
Centers for Disease Control ■ National Institute for Occupational Safety and Health

NIOSH



Health Hazard Evaluation Report

HETA 83-205-1702
UNITED UNIFORM COMPANY
OF MEMPHIS
MEMPHIS, TENNESSEE

PREFACE

The Hazard Evaluations and Technical Assistance Branch of NIOSH conducts field investigations of possible health hazards in the workplace. These investigations are conducted under the authority of Section 20(a)(6) of the Occupational Safety and Health Act of 1970, 29 U.S.C. 669(a)(6) which authorizes the Secretary of Health and Human Services, following a written request from any employer or authorized representative of employees, to determine whether any substance normally found in the place of employment has potentially toxic effects in such concentrations as used or found.

The Hazard Evaluations and Technical Assistance Branch also provides, upon request, medical, nursing, and industrial hygiene technical and consultative assistance (TA) to Federal, state, and local agencies; labor; industry and other groups or individuals to control occupational health hazards and to prevent related trauma and disease.

Mention of company names or products does not constitute endorsement by the National Institute for Occupational Safety and Health.

HETA 83-205-1702
JUNE 1986
UNITED UNIFORM COMPANY OF MEMPHIS
MEMPHIS, TENNESSEE

NIOSH INVESTIGATORS:
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I. SUMMARY

On March 24, 1983, the National Institute for Occupational Safety and Health (NIOSH) received a request to evaluate the incidence of cumulative trauma disorders among workers at United Uniform Company, Memphis, Tennessee. Workers at the facility reported aching, numbness, clumsiness, and swelling of the hands and wrists.

On June 28-30, 1983, NIOSH investigators conducted ergonomic and medical evaluations at the facility. The ergonomic evaluation of jobs, or work tasks suspected to be associated with cumulative trauma disorders, consisted primarily of a documentation of the hand/arm postures during exertion and their respective force, and frequency of occurrence. Videotapes and 35 millimeter still pictures were taken to aid in the job analysis. Of the 47 jobs analyzed, 31 were judged to be medium-risk, 13 low-risk, and 3 were considered to be a high-risk for developing cumulative trauma disorders. The high-risk jobs were; joining, set and close collar, and bartack pocket and fly. Each of these jobs required many hand and wrist movements per day and medium amounts of muscular force.

An upper limb symptom questionnaire was administered to 58 female sewers, 32 of whom also had an ergonomic job analysis. For purposes of analyzing the questionnaire data, high/medium-risk, low-risk, and no evaluation groups were compared. Shoulder, neck, and arm pain were each reported by a least one-third of all three groups; none of the differences between groups was statistically significant. For eight of nine specific hand/wrist symptoms, at least one of the groups had a prevalence of 30% or more. None of the differences between groups, with respect to any of the hand/wrist symptoms was statistically significant.

The epidemiologic and ergonomic data did not indicate a health hazard at this plant. Although there were seemingly high prevalences of several upper limb symptoms, this study did not document epidemiologically any differences in risk between the various jobs for developing cumulative trauma disorders. The ergonomic analysis indicated that there were three high-risk jobs (out of 47 sewing jobs), and recommendations are made which will reduce the biomechanical demands of these and other jobs.

KEYWORDS: SIC 2328 (Men's Youth's, and Boy's Furnishings, Work Clothing, and Allied Garments), cumulative trauma disorders.

II. INTRODUCTION

On March 24, 1983, the National Institute for Occupational Safety and Health (NIOSH) received a request for a health hazard evaluation from an authorized representative of the employees at the United Uniform Manufacturing Company of Memphis, Incorporated, Memphis, Tennessee. This request was prompted by complaints among the employees of symptoms suspected to be related to cumulative trauma disorders. These symptoms included aching, numbness, clumsiness, and swelling of the wrists and hands. These workers perform sewing tasks in the manufacture of work uniforms. On June 28-30, 1983, NIOSH conducted ergonomic and medical evaluations at the United Uniform plant.

III. BACKGROUND

United Uniform Manufacturing Company of Memphis, Incorporated, a subsidiary of Workwear Corporation, Cleveland, Ohio, is a maker of work uniforms. At the time of this evaluation, the plant employed a predominantly female workforce of approximately 125 workers. Eighty-five to ninety of the workers are sewing machine operators who make parts of, or assemble, shirts or pants. Production rates ranged from 29 dozen to 325 dozen per day, depending upon the job.

IV. EVALUATION DESIGN AND METHODS

The ergonomic job analysis of sewing machine operators consisted of a documentation of the movements and postures required to perform each job. Videotapes and 35mm still pictures were taken to aid in this job analysis. The videotapes were reviewed in slow motion so that each type of posture (wrist flexion, wrist extension, ulnar deviation, etc.) could be recorded by type and frequency of occurrence. Muscular force exerted was subjectively estimated and categorized as either "low or none", "medium" or "high". These force and posture data were logged onto a worksheet (Appendix A). For each job, the total number of movements per hand was tallied and the job was then categorized as either high, medium, or low risk for development of cumulative trauma disorders.

A medical questionnaire (Appendix B) addressing upper limb symptoms, with emphasis on hand and wrist problems, was administered to all willing employees.

V. EVALUATION CRITERIA

There is evidence in the literature that cumulative trauma disorders (CTDs) are associated with repetitive and forceful movements of the joints and muscles (1-4). Examples include tendonitis, tenosynovitis, carpal tunnel syndrome, ganglionic cysts, epicondylitis, myositis, and bursitis. These disorders affect the nerves, tendons, and tendon sheathes of the upper extremity. The reported causal factors of these ailments, particularly those found in the workplace, are the force of an exertion, the posture of the hand/arm, during exertion, and the frequency of the movement. The postures most often associated with upper extremity cumulative trauma disorders are wrist extension and flexion, ulnar and radial deviation of the wrist, open-hand pinching, twisting movements of the wrist and elbow, and shoulder abduction. CTD's are considered in many cases to be work-related because these types of postures and movements are required in many manufacturing and assembly jobs in industry. Occupations for which a high incidence of CTD's is known to exist include electronic components assembly, textile manufacture, small appliance manufacturing and assembling, meat processing and packing, fish filleting, buffing and filing. What is common to all of these jobs is repetitive, stereotyped movement of the hand, arm, and wrist coupled with varying degrees of muscular exertion. The incidence of CTDs among these and other industries has not yet been established, but incidences as high as 44 cases per 200,000 work hours are known to exist (5).

While occupational factors are considered to be major on the development of these disorders, there are many reported non-occupational components of CTDs. Outside activities such as woodworking, tennis, weight lifting, knitting, and sewing impose the same type of physical demands on the musculo-tendinous system as manual work. The carpel tunnel syndrome, an entrapment disorder affecting the median nerve, is associated with other common conditions such as pregnancy, menopause, diabetes, use of oral contraceptives, gynecological surgery, rheumatoid arthritis, acromegaly, and gout (6). The nature of many of these conditions explains why carpal tunnel syndrome occurs from 3 to 10 times more often in women than in men.

There are studies which indicate a level of risk associated with certain frequencies of movements (7-14). Reported number of movements for which an incidence of CTDs has occurred ranged from 5000 to 50,000 per day. The variety of activities described, however, e.g., cutting poultry, keystroking, hand sanding/filing, and packing tea, etc., make it difficult to quantitatively assess this variable. Any inference

drawn from these studies about the contribution of frequency of movement as a causative factor to the development of CTDs involves a degree of professional judgement.

The criteria for assigning a risk level for workers at United Uniform were developed from information contained in the literature discussed above. These criteria were:

posture - <7500 movements/shift = low risk
7500 to 20,000 movements/shift = medium risk
>20,000 movements/shift = high risk

The posture data were then coupled with the force assessments and an overall risk was assigned to the job according to the following table:

		Force		
		Low	Medium	High
Repetition	Low	L-Risk	M-Risk	H-Risk
	Medium	M-Risk	M-Risk	H-Risk
	High	H-Risk	M-Risk	H-Risk

VI. RESULTS

A. Ergonomics Evaluation

An ergonomic evaluation was performed for 47 sewing jobs. A low risk was assigned to 13 of these jobs, 31 were judged to be a medium risk, and 3 were considered to be a high risk for developing cumulative trauma disorders. The high risk jobs were: joining, set and close collar, and bartack pocket and fly. Each of these jobs required many hand and wrist movements per day and medium amounts of muscular force. These risk assignments do not necessarily mean that anyone performing a high risk job will develop hand/wrist problems, and similarly, that a person performing one of the medium or low risk jobs will not. Many of the judgements made to establish risk level were subjective. Moreover, these risk levels do not take into account interpersonal variability nor the personal risk factors which are known to contribute to the development of cumulative trauma disorders of the upper extremity.

B. Medical Evaluation

Sixty-four workers completed the questionnaire; all but four were sewers. Two of the 60 sewers were men. Thirty-two of the 58 female sewers had an ergonomic job analysis. There were 15 other ergonomic analyses, one a male sewer and 14 workers who did not complete the questionnaire. Of the 32 female sewers who had an ergonomic job analysis, two had a high-, 20 a medium-, and 10 a low-risk job. For purposes of data analysis the workers with high- and medium-risk jobs are combined.

The medium/high- and low-risk groups were comparable with respect to age, years at the plant, and years at the current job (Table 1). The 5.5 year difference in median age was not statistically significant. The group of workers who did not have an ergonomic evaluation appeared to have more years, both at the plant and at the current job, than either of the evaluated groups, but none of these differences was statistically significant.

Neck, shoulder, and arm pain were commonly reported by sewers, but the medium/high-risk group did not have significantly higher prevalences than either the low-risk group or the unevaluated group. For only two of the nine specific hand/wrist symptoms did the medium/high-risk group have a prevalence numerically greater than the low-risk group, but in neither case was the difference statistically significant. In fact, there were no significant differences among any of the groups with respect to the prevalence of any of the hand/wrist symptoms.

VII. DISCUSSION

The strategy for reducing the risk of CTDs for a certain task through ergonomic analysis, is to minimize exposure to causative work factors. This is achieved through redesign of work stations, tools used, or work methods that the job analysis indicates are associated with the risk factors.

Generally, the activities associated with performing the various jobs in the sewing room involved picking up unfinished pieces of material that were located on either side of the worker, aligning them on the sewing machine, and executing the required stitches. Finished parts

would either be stacked in bins on the side of the worker or pushed forward into a bin. Production rates ranged from 29 dozen to 325 dozen per day depending upon the job. Each work station was furnished with the same type metal chair with a seat height of 18 inches. These chairs were not adjustable and had no footrests. Workers who needed to be higher to perform their jobs placed pillows on the chair seat. In some cases, this measure rendered the seat back useless, effectively reducing the chair to a stool.

The most commonly observed posture was ulnar deviation of the wrists by workers stationed at the sleeve type sewing machines. Other common postures observed were thumb-opposing-index finger pinching to pick up and align material, pulp pressing to push material through the flat bed sewing machines, and abduction of the shoulders to stack finished pieces onto piles adjacent to the workplace.

The symptom prevalences among the unevaluated workers were neither greater nor less than those of either the medium/high- or low-risk groups. The lack of an association between symptoms and estimated ergonomic risk might be explained by (a) the inadequacy of the questionnaire in correctly classifying the presence of carpal tunnel syndrome and other etiologically related disorders, (b) the inadequacy of the ergonomic criteria for estimating job risk, and/or (c) prior employee self-selection into lower- and higher-risk jobs according to individual tolerance of the ergonomic stresses that lead to cumulative trauma disorders.

VIII. CONCLUSIONS

Despite the seemingly frequent occurrence among sewers of symptoms suggestive of carpal tunnel syndrome and other upper limb cumulative trauma disorders, this investigation did not document epidemiologically any difference in risk between various jobs. Ergonomically there were only 3 jobs evaluated as high-risk for development of CTDs, but these jobs were not proven to be hazardous in this study.

IX. RECOMMENDATIONS

The following recommendations for reducing the biomechanical demands for all jobs at United Uniform are offered:

1. For standing operators, provide a footrail and a pad or mat to stand on.

2. For operators using a sleeve type sewing machine, provide an adjustable chair with a footrest, back support, and elbow supports so that the wrist can be maintained in a neutral position rather than in ulnar deviation.

3. In operations involving full shirts and pants, remove completed material periodically or provide bins which can be set aside so the piles that are shoulder height and above do not accumulate in the workplace. Excessive piling of unfinished and finished parts not only causes the worker to abduct the shoulder, but it also increases the job cycle time.

4. For jobs involving small parts, such as pockets, provide an angled bin that jogs the material in such a way that a pinch grip is not needed to pick up the pockets. Access to unfinished material parts should be such that they slide out with a simple motion of the fingertips.

5. For jobs where material is guided through the sewing machine on a flat table requiring a pulp pressing posture, coat the work surface with a material (teflon) which reduces the friction between the table and material.

6. For flat-bed table type workplaces, the edge of the table should be padded to minimize the potential trauma to the forearm and elbow.

The following job-specific recommendations are also offered for the Company's consideration:

1. Labels; glue labels to pants and shirts so that the wrist flexion and pinching required to perform this job can be eliminated.

2. Joining; angle the work table slightly away from the worker to reduce the ulnar deviation and wrist flexion required to join parts.

3. Button sew; develop a method to automatically insert buttons into the machine so that the pinch grip required to manually insert them can be eliminated. A hollow tube that the buttons are stacked in (and which is placed over the button holder on the sewing machine) is one possible method.

4. Buttoning; implement a looped-wire tool for buttoning to eliminate forceful pinching required to do this job. Similar tools are used by handicapped individuals to button.

5. Close front pocket; provide a means to unload finished stock into a bin placed in front of or to the side of the workplace. The worker currently reaches under the arm of the sewing machine to move completed material out of the work area.

6. Side seaming; provide elbow support for the worker. Both sides of the pants are on the left side of the worker. Angled bins to hold this material would facilitate the grabbing of material. Finished parts should be pushed forward instead of to the right side of the workplace. This recommendation can be considered for any other job where finished materials are placed at the side of the worker.

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XII. DISTRIBUTION AND AVAILABILITY OF REPORT

Copies of this report are currently available upon request from NIOSH, Division of Standards Development and Technology Transfer, Publications Dissemination Section, 4676 Columbia Parkway, Cincinnati, Ohio 45226. After 90 days, the report will be available through the National Technical Information Service (NTIS), 5285 Port Royal, Springfield, Virginia 22161. Information regarding its availability through NTIS can be obtained from NIOSH Publications Office at the Cincinnati address. Copies of this report have been sent to:

1. United Uniform Company of Memphis, Memphis, Tennessee
2. Authorized Representatives of Employees
3. NIOSH, Region IV
4. OSHA, Region IV

For the purpose of informing affected employees, copies of this report shall be posted by the employer in a prominent place accessible to the employees for a period of 30 calendar days.

Table 1

Symptoms Among Sewers According to
Ergonomic Evaluation of Job

United Uniform
Memphis, Tennessee

HETA 83-205

June 28-30, 1983

	Ergonomic risk[A]		No ergonomic evaluation
	Medium or high	Low	
Number of workers	22	10	26
Age (years)			
Range	21.5-54.3	30.8-54.6	18.8-65.2
Median	33.0[B]	38.5[B]	36.8
Years at plant			
Range	1.0-13.2	08-13.3[C]	0.1-15.1[C]
Median	6.1[D]	6.3	9.2[D]
Years at current job			
Range	0.1-13.2[C]	0.2-10.8[C]	0.1-15.1[C]
Median	5.5[E]	4.9[F]	7.2[E,F]
Shoulder pain	12 (55)[G]	8 (80)	13 (50)
Neck pain	9 (41)	4 (40)	9/25 (36)
Arm pain	8 (36)	6 (60)	9/25 (36)
Elbow pain	2 (9)	2 (20)	2/24 (8)
Hand/wrist symptoms			
Numbness	9/20 (45)	6 (60)[H]	7/25 (28)[G]
Cramping	8/18 (44)[I]	1/7 (14)[I]	5/21 (24)
Tingling	9/21 (43)	5/9 (56)	8/24 (33)
Swelling	6/17 (35)	2/8 (25)	7/23 (30)
Stiffness	4/15 (27)	3/9 (33)	10/22 (45)
Pain	3/14 (21)[J]	4/9 (44)	10/21 (48)[J]
Burning	2/13 (15)	2/8 (25)	3/20 (15)
Other discomfort	0/9 (0)	0 (0)	1/15 (7)
Hand/finger weakness	6 (27)	3 (30)	7/23 (30)
Awakened by hand/wrist pain or discomfort	3/14 (21)	2/7 (29)	5/12 (42)

A -- See text.
B -- $p > 0.1$, Wilcoxon rank sum test.
C -- Data not available for one or more workers.
D -- $0.05 > p > 0.1$, Wilcoxon rank sum test.
E -- $p > 0.4$, Wilcoxon rank sum test.
F -- $p > 0.5$, Wilcoxon rank sum test.
G -- Number in parentheses is percent of workers in category reporting symptom. Denominator shown only when data not available for one or more workers in category.
H -- $p = 0.08$, Fisher's exact test, 1-tailed.
I -- $p = 0.16$, Fisher's exact test, 1-tailed.
J -- $p > 0.2$, Fisher's exact test, 1-tailed.

Appendix A

INDUSTRIAL HYGIENE DATA

POSTURE # ___

IDENTIFICATION NUMBER	☐☐☐☐	(1-4)
NAME OF POSTURE	☐☐	(5-6)
HAND USED 3 = left 4 = right	☐	(7)
REPETITIONS PER MINUTE	☐☐	(8-9)
ANGLE 0 = none 1 = 1-45 2 = 45-90	☐	(10)
DURATION (seconds)	☐☐ ☐	(11-13)
FORCE 1 = none or low 2 = medium 3 = high	☐	(14)
NUMBER OF CYCLES	☐☐☐☐☐	(15-19)

* *

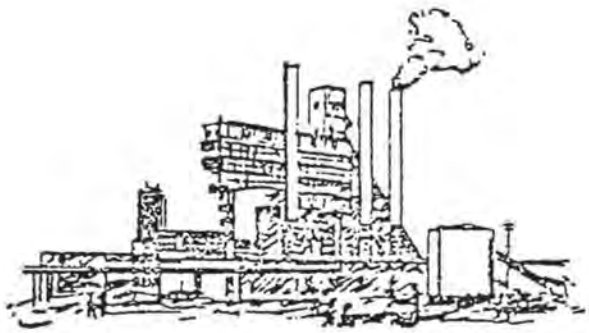
NOTE: ENTER FOLLOWING CODES ON LAST POSTURE USED.

CYCLE TIME (seconds)	☐☐	(20-21)
OVERALL ASSESSMENT 1 = none or low 2 = medium 3 = high	☐	(22)
	CARD 0 ☐	(79-80)

NIOSH

United Uniforms, Memphis, Tenn.

Questionaire



U. S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service/Centers for Disease Control
National Institute for Occupational Safety and Health

DC/NIOSH (C) TF 82-065B
0/82 (Exp. 4/83)

INTERVIEWER: [ ] (7-8)

CHECKED BY: [ ] (9-10)

DATE OF INTERVIEW: [ ] MO. — [ ] DAY — [ ] YR (11-16)

LABEL

SUBJECT IDENTIFICATION

CASE NO. [ ] [ ] (1-5)

LAST NAME: [ ] (17-35)

FIRST NAME: [ ] (36-48)

MIDDLE INITIAL: [ ] (49)

ADDRESS: [ ] (50-76)

CITY: [ ] (6-26)

[0] [1] (79-80)

STATE: [ ] (27-28)

ZIP CODE: [ ] (29-33)

PERSONAL DATA

TELEPHONE: [ ] AREA CODE — [ ] — [ ] (34-43)

2. RACE, ETHNIC CODE: [ ] (44)
   1. White, not of Hispanic Origin
   2. Black, not of Hispanic Origin
   3. Hispanic
   4. American Indian or Alaskan Native
   5. Asian or Pacific Islander

3. SEX: 1. Male 2. Female [ ] (45)

4. What is your date of birth? (month/day/year) [ ] — [ ] — [ ] (46-51)

OCCUPATIONAL HISTORY - PRESENT EMPLOYER

THESE FIRST FEW QUESTIONS ARE ABOUT THE JOBS YOU'VE HELD HERE AT THIS PLANT. LET'S START WITH YOUR PRESENT JOB.

1. WHAT DEPARTMENT DO/DID YOU WORK IN?

2. WHAT IS YOUR EXACT JOB TITLE; THAT IS, THE COMPLETE JOB TITLE USED BY THE COMPANY?

ASK FOR PREVIOUS JOBS:

3. WHAT WAS YOUR JOB TITLE? (IS THIS THE FULL JOB TITLE USED BY THE COMPANY?)

4. IN WHAT MONTH AND YEAR DID YOU START ON THIS JOB?

5. AND IN WHAT MONTH AND YEAR DID YOU STOP WORKING ON THIS JOB? (DO NOT ASK FOR CURRENT JOB.)

6. WHAT KIND OF WORK DID YOU DO MOST OF THE TIME?

7. HAVE YOU HELD ANY OTHER JOBS AT THIS PLANT?

(ASK QUESTIONS 1-7 FOR EACH JOB. ASK QUESTION 7 UNTIL UNPRODUCTIVE.)

DEPARTMENT	JOB TITLE	DATES OF EMPLOYMENT	WORK DESCRIPTION
		MO. - YR. (12-15)	
(6-7)	(8-11)	MO. - YR. (16-19)	
		MO. - YR. (26-29)	
(20-21)	(22-25)	MO. - YR. (30-33)	
		MO. - YR. (40-43)	
(34-35)	(36-39)	MO. - YR. (44-47)	
		MO. - YR. (54-57)	
(48-49)	(50-53)	MO. - YR. (58-61)	
		MO. - YR. (68-71)	
(62-63)	(64-67)	MO. - YR. (72-75)	0 5 (79-80)
		MO. - YR. (12-15)	
(6-7)	(8-11)	MO. - YR. (16-19)	
		MO. - YR. (26-29)	
(20-21)	(22-25)	MO. - YR. (30-33)	

PRESENT JOB

Now I'm going to ask you some questions about your present job.

During the past three months (April, May and June) have you experienced any of the following while working on your present job?

	YES	NO	DON'T KNOW
1. Eye irritation?			
2. Nose or throat irritation?			
3. Sore throat			
4. Difficulty swallowing?			
5. Coughing?			
6. Headache?			
7. Dermatitis or skin problems?			

In your present job do you use your hands to do any of the following motions?

(If YES) Which hand?

	LEFT	RIGHT	BOTH	NEITHER
8. Lifting or lowering?				
9. Pushing or pulling?				
10. Twisting, screwing or turning?				
11. Bending or rotating your wrists?				
12. Pinching or grasping with your fingers?				

	LEFT	RIGHT	BOTH
13. Do you consider yourself left handed, right handed or both?			
14. Which hand do you use the most at work?			

15. Do you have any hobbies in which you use your hands a great deal, e.g. knitting or whittling?

YES_____ NO_____

15a. (If YES,) Specify:_____

SYMPTOMS

In the past two years have you had recurring pain or discomfort in any of the following: (If YES, describe)

	YES	NO	DESCRIPTION
1. Your neck?			
2. Your shoulders?			
3. Your arms?			
4. Your elbows?			

During the past two years have you had any recurring pain or discomfort in your hands or wrists? For example have your had (see list in questions 5-10)

(If YES) a. Which hand?

b. Does it get worse after work or at night?

c. What part of your hand or wrist is affected the most? (See chart)

d. (For q.10 and 11) Do you get this in your little finger?

	LT	RT	BOTH	Worse after work /at night YES	Worse after work /at night NO	Little finger YES	Little finger NO	DON'T KNOW
5. Swelling?								
6. Stiffness?								
7. Cramping?								
8. Pain?								
9. Burning?								
10. Tingling or "pins and needles?"								
11. Numbness?								
12. Any other discomfort?								

13. Has this pain or discomfort ever awaken you from your sleep?

YES _____ NO _____

(If YES) Specify type of discomfort: _____

ID# ___ ___ ___ ___

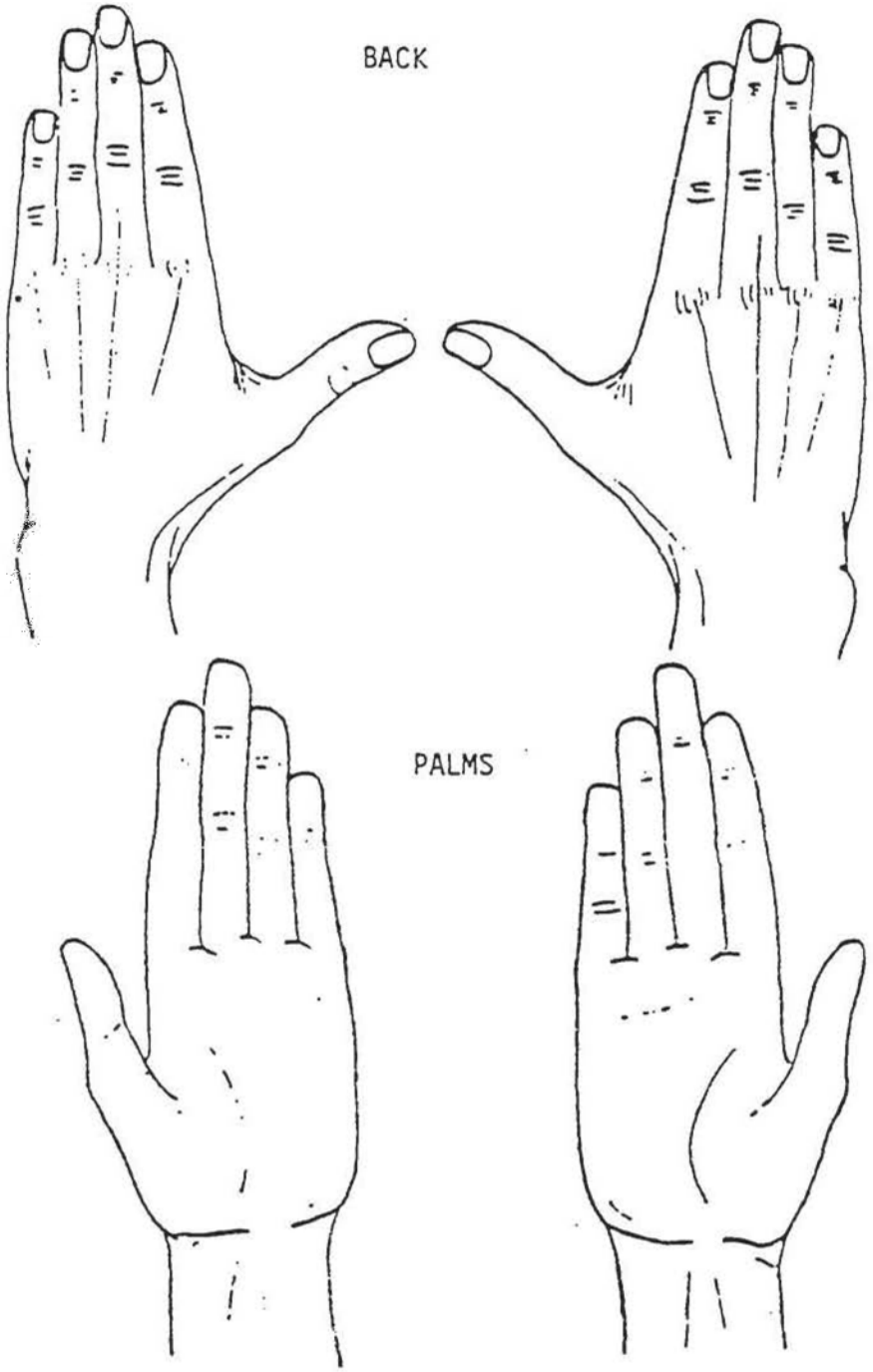
FOR OFFICE USE ONLY

WRIST, HAND, FINGERS

LEFT ___ RIGHT ___ BOTH ___ NONE ___

LEFT ___ RIGHT ___ BOTH ___ NONE ___

Carefully shade in the areas where most of the difficulty occurs.



14. During the past two years have you ever had a persistent feeling of weakness in your hands or fingers?

YES _____ NO _____ DON'T KNOW _____

For example, have you had difficulty with:

(If YES) Which hand?

	LEFT	RIGHT	BOTH	NO
15. Buttoning your shirt?				
16. Turning a key in a lock?				
17. Turning a door knob?				
18. Dropping things or tools?				

19. Have you noticed that your hands sweat less than they did in the past?

(If YES) Which hand? LEFT _____ RIGHT _____ BOTH _____ NO _____

MEDICAL HISTORY

1. Have you ever noticed that any of your joints were painful and swollen for at least a month for no apparent reason?

YES _____ NO _____ DON'T KNOW _____

(If YES) 1a. Which joints bothered you?

Specify: _____
(Indicate left or right)

2. Have you ever had stiffness in your joints when first getting out of bed on most days for at least a month?

YES _____ NO _____ DON'T KNOW _____

(If YES) 2a. How long does it last?

Less than 30 minutes?_____ or more than 30 minutes?_____

Have you ever been told by a doctor or other medical provider that you had

	YES	NO	DON'T KNOW
3. Arthritis, rheumatism or any other joint problem?			
4. Diabetes?			
5. Hyperthyroidism or problems with your thyroid?			

6. Have you ever had any injuries to your hands, wrists, arms, shoulders, neck, or back (including fractures, accidents at work, automobile accidents, or sports injuries)?

YES _____ NO _____

(If YES) 6a. What type of injury was it?

6b. Did it occur on the right or the left or both?

6c. In what year did this occur?

	HAND/WRIST		ARM/ELBOW		SHOULDER		NECK	BACK
	Left	Right	Left	Right	Left	Right		
Broken Bone/ Dislocation	____	____	____	____	____	____	____	____
Strain Sprain Muscle Pull	____	____	____	____	____	____	____	____

Specify Other _____

7. Have you ever had an operation or surgery on your wrists, hands or fingers?

YES _____ NO _____

(If YES) Specify: _____

When did this occur? _____ (month/year)

8. Have you ever received any other medical treatment for your wrists, hands, or fingers?

YES _____ NO _____

(If YES) Specify: _____

When did this occur? _____ (month/year)

9. Are you currently taking any medicine prescribed by a physician or any over-the-counter drugs such as vitamins?

YES _____ NO _____

(If YES) Specify: _____

FOR WOMEN ONLY:

10. Have you ever been pregnant? YES _____ NO _____

(If YES) 9a. When was your last pregnancy? _____
(month/year)

11. Have you ever taken birth control pills regularly for 6 months?

YES _____ NO _____

(If YES), 11a. Are you still taking birth control pills?

YES _____ NO _____

10b. How many years in total have you used birth control pills regularly?

_____ years.

12. Have you had a hysterectomy? YES _____ NO _____

(If YES), 12a. When did this occur? _____
(month/year)

12b. Were both you ovaries removed?

YES _____ NO _____

13. Do you still get your menstrual periods or have you passed menopause?

_____ Still get periods.

_____ Past menopause.

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