

ANALYSIS OF ACCIDENTS INVOLVING FIELD MAINTENANCE EMPLOYEES OF THE IOWA STATE HIGHWAY COMMISSION¹

MARCH 1960

by

H. A. Padgett

The following tabulations, Tables 193 through 201, present a summary of personal injury accidents to field maintenance employees of the Iowa State Highway Commission, from July through December 1959.

Equipment operators reported a larger number of injuries than did any other class of personnel, and these occurred more frequently while operating equipment than while doing other work. However, mechanics incurred the highest frequency of accidents per employee.

Although the part of body most frequently injured was the hand and fingers, back injuries caused the most lost time during November and December, the months for which this information was available.

Data presented in Tables 193 and 195 were obtained from the Maintenance Employee Record, January 1, 1960.

Tables which present numbers of accidents and injuries are not in numerical agreement because some accidents caused multiple injuries. Accidents and injuries data were obtained from Maintenance Department tabulations for the months July through November 1959 and from copies of the First Report of Injury for November and December 1959.

Time lost because of injury as shown in Table 201 was obtained from copies of the Supplemental Report of Injury.

TABLE 193
NUMBER OF EMPLOYEES BY DISTRICT AND JOB CLASSIFICATION

District	Foreman	Mechanic	Laborer	Operator	Total
1	18	21	-	255	294
2	18	19	-	180	217
3	17	11	-	163	191
4	20	21	2	210	253
5	19	17	2	167	205
6	<u>13</u>	<u>18</u>	<u>4</u>	<u>190</u>	<u>225</u>
Total	105	107	8	1,165	1,385
Percent of total	8	8	1	83	100

^{1/} Safety is one of the specialized aspects of maintenance operations and this subject is one of the several objectives of the maintenance study. The numerical data presented herein constitute a convenient reference for those who are concerned with management aspects of the safety problem. This analysis as well as additional facts and observations about safety were furnished to the Central Office early in 1960.

TABLE 194
NUMBER OF ACCIDENTS BY DISTRICT AND THE YEARLY MAN -HOURS
WORKED PER DISTRICT

District	Accidents		Man-Hours Worked	
	Number of Accidents	Percent of Total	Number of Man-Hours Worked	Percent of Total
1	33	20	613,000	20
2	32	19	473,700	16
3	21	13	421,700	14
4	29	17	538,100	18
5	23	14	454,900	15
6	29	17	496,600	17
Total	167	100	3,000,000	100

TABLE 196
NUMBER OF ACCIDENTS BY WORKMAN'S ACTION AT TIME OF ACCIDENT AND JOB CLASSIFICATION

Workman's Action at Time of Accident	Job Classification				Total	Percent of Total
	Foreman	Mechanic	Laborer	Operator		
Operating equipment	-	-	-	24	24	15
Using hand tools	1	4	1	15	21	13
Lifting, loading, unloading, carrying	-	-	-	20	20	12
Poison Oak or poisonous bites ^{1/}	-	2	-	12	14	8
Struck by object	1	1	-	12	14	8
Hooking or unhooking equipment ^{2/}	-	1	-	9	10	6
Struck by vehicle or equipment	-	2	-	6	8	5
Vehicle accidents	-	1	-	3	4	2
Welding or cutting	-	3	-	1	4	2
Using power tools	-	2	-	1	3	2
Getting into, out of, or on equipment	-	-	-	2	2	1
Repairing, adjusting, servicing equipment	-	-	-	2	2	1
Walking or climbing	-	-	-	2	2	1
Using hot asphalt or burners	-	-	-	1	1	1
Miscellaneous ^{3/}	2	7	-	29	38	23
Total	4	23	1	139	167	100
Percent of total accidents	2	14	1	83	100	
Number of employees	105	107	8	1,165	1,385	
Percent of total employees	8	8	1	83	100	

^{1/} Poison oak and poisonous bite injuries occurred only during July and August.
^{2/} Hooking or unhooking equipment accidents mostly involved snowplows.
^{3/} Miscellaneous accidents were so classified when it was impossible to determine workman's action at the time of injury from the tabulation sheet. During November and December, the months for which accident reports were available, only 4 of 59 or 7 percent of the accidents were classified as miscellaneous.

TABLE 195
NUMBER OF EMPLOYEES AND NUMBER OF ACCIDENTS BY AGE GROUP

Age Group	Employees		Accidents	
	Number of Employees	Percent of Total	Number of Accidents	Percent of Total
Under 20	9	1	2	1
20-30	137	10	20	12
30-40	328	24	40	24
40-50	369	26	47	28
50-60	370	27	39	23
Over 60	172	12	19	12
Total	1,385	100	167	100

TABLE 197
NUMBER OF INJURIES BY JOB CLASSIFICATION AND PART OF BODY INJURED

Part of Body Injured	Job Classification				Total Injuries	Percent of Total
	Foreman	Mechanic	Laborer	Operator		
Finger and hand	3	11	1	35	50	28
Back	1	3	-	24	28	16
Arm	-	4	-	15	19	11
Leg and knee	-	1	-	15	16	9
Eye	-	3	-	12	15	9
Head, neck, face	-	-	-	13	13	7
Shoulder	-	1	-	8	9	5
Foot	-	1	-	7	8	4
Chest, abdomen, side	-	1	-	4	5	3
Hip	-	-	-	3	3	2
All other	-	-	-	10	10	6
Total	4	25	1	146	176	100
Percent of total	2	14	1	83	100	

TABLE 198
NUMBER OF ACCIDENTS BY AGE GROUP AND WORKMAN'S ACTION AT TIME OF ACCIDENT

Workman's Action at time of Accident	Age Group						Total Number of Accidents	Percent of Total
	Under 20	20-30	30-40	40-50	50-60	Over 60		
Operating equipment	-	3	6	11	3	1	24	15
Using hand tools	-	4	5	2	6	4	21	13
Lifting, loading, unloading, carrying	1	1	4	5	6	3	20	12
Poison Oak or poisonous bites	-	1	4	5	2	2	14	8
Struck by object	1	1	5	2	4	1	14	8
Hooking or unhooking equipment	-	3	2	1	3	1	10	6
Struck by vehicle or equipment	-	3	1	1	2	1	8	5
Vehicle accidents	-	1	-	1	1	1	4	2
Welding or cutting	-	1	-	2	-	1	4	2
Using power tools	-	-	1	1	1	-	3	2
Getting into, out of, or on equipment	-	-	1	1	-	-	2	1
Repairing, adjusting, servicing equipment	-	-	1	1	-	-	2	1
Walking or climbing	-	-	1	-	-	1	2	1
Using hot asphalt or burners	-	-	-	1	-	-	1	1
Miscellaneous	-	2	9	13	11	3	38	23
Total	2	20	40	47	39	19	167	100
Percent of total	1	12	24	28	23	12	100	

TABLE 199
NUMBER OF INJURIES BY AGE GROUP AND PART OF BODY INJURED

Part of Body Injured	Age Group						Total Number of Injuries	Percent of Total
	Under 20	20-30	30-40	40-50	50-60	Over 60		
Finger and hand	-	8	12	15	11	4	50	28
Back	-	3	9	9	4	3	28	16
Arm	-	-	4	4	7	4	19	11
Leg and knee	1	3	4	5	2	1	16	9
Eye	-	2	4	5	2	2	15	9
Head, neck, face	1	1	2	3	4	2	13	7
Shoulder	-	1	-	2	3	3	9	5
Foot	-	2	1	3	1	1	8	4
Chest, abdomen, side	-	-	1	-	2	2	5	3
Hip	-	-	1	1	1	-	3	2
All other	-	2	2	3	2	1	10	6
Total	2	22	40	50	39	23	176	100
Percent of total	1	13	23	28	22	13	100	
Number of Employees	9	137	328	369	370	172	1,385	
Percent of Total	1	10	24	26	27	12	100	

TABLE 200
NUMBER OF INJURIES BY WORKMAN'S ACTION AT TIME OF INJURY AND PART OF BODY INJURED

Workman's Action at Time of Injury	Part of Body Injured											Total Number of Injuries	Percent of Total
	Finger and Hand	Back	Arm	Leg and Knee	Eye	Head Neck Face	Shoulder	Foot	Chest Abdomen Side	Hip	All other		
Operating equipment	9	4	3	1	1	1	1	1	-	-	3	24	14
Using hand tools	14	-	2	-	2	1	2	-	-	-	-	21	12
Lifting, loading, unloading, carrying	1	6	1	3	1	1	1	4	1	1	-	20	11
Struck by object	2	-	1	-	7	4	1	-	-	-	-	15	8
Poison Oak or poisonous bites	1	2	5	2	-	-	-	-	-	1	2	14	8
Hooking or unhooking equipment	6	3	-	-	-	-	-	-	-	1	-	10	6
Struck by vehicle or equipment	2	1	1	3	-	1	-	-	-	-	2	9	5
Vehicle accidents	1	-	-	1	-	-	-	-	-	-	2	7	4
Welding or cutting	1	-	-	-	2	-	-	1	-	-	-	4	2
Repairing, adjusting, servicing equipment	1	1	-	-	-	1	-	-	-	-	-	3	2
Using power tools	2	-	1	-	-	-	-	-	-	-	-	3	2
Getting into, out of, or on equipment	-	-	-	1	-	-	-	1	-	-	-	2	1
Using hot asphalt or burners	1	-	-	-	-	1	-	-	-	-	-	2	1
Walking or climbing	-	1	-	-	-	-	-	1	-	-	-	2	1
Miscellaneous	9	10	5	5	2	2	3	1	2	-	1	40	23
Total	50	28	19	16	15	13	9	8	5	3	10	176	100
Percent of Total	28	16	11	9	9	7	5	4	3	2	6	100	

TABLE 201
TIME LOST BECAUSE OF INJURY DURING NOVEMBER AND DECEMBER 1959 BY WORKMAN'S ACTION
AT THE TIME OF INJURY AND THE PART OF BODY INJURED

Workman's Action at time of Injury	Part of Body Injured																		Total		Average Days Lost per Injury		
	Back		Finger and Hand		Head Neck Face		Arm		Foot		Hip		Chest Abdomen Side		Eye		Leg or Knee					Shoulder	
	No. of Inju- ries	Days Lost	No. of Inju- ries	Days Lost	No. of Inju- ries	Days Lost	No. of Inju- ries	Days Lost	No. of Inju- ries	Days Lost	No. of Inju- ries	Days Lost	No. of Inju- ries	Days Lost	No. of Inju- ries	Days Lost	No. of Inju- ries	Days Lost	No. of Inju- ries	Days Lost		No. of Inju- ries	Days Lost
Lifting, loading, unloading, carry- ing	6	88	-	-	1	5	1	30	3	13	1	40	1	10	1	2	1	1	-	-	15	189	12.6
Using hand tools	-	-	2	8	-	-	2	35	-	-	-	-	-	-	-	-	-	-	-	-	4	43	10.7
Vehicle accidents	-	-	1	10	1	5	-	-	-	-	-	-	1	10	-	-	-	-	-	-	3	25	8.3
Using power tools	-	-	2	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	9	4.5
Hooking or unhooking equipment	1	5	-	-	-	-	-	-	-	1	3	-	-	-	-	-	-	-	-	-	2	8	4.0
Repairing, adjusting, servicing equip- ment	1	1/	1	4	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	8	4.0
Using hot asphalt or burners	-	-	1	2	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	2.0
Getting into, out of or on equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	-	-	1	3	3.0
Operating equipment	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1.0
Miscellaneous	1	2	-	-	1	3	-	-	-	-	-	-	-	1	3	-	-	-	1	2	4	10	2.5
Total	9	96	7	33	5	19	3	65	3	13	2	43	2	20	2	5	2	4	1	2	36	300	
Average days lost per injury	10.7		4.7		3.8		21.7		4.3		21.5		10.0		2.5		2.0		2.0		8.3		

1/ Has not returned to work. Not included in totals.