

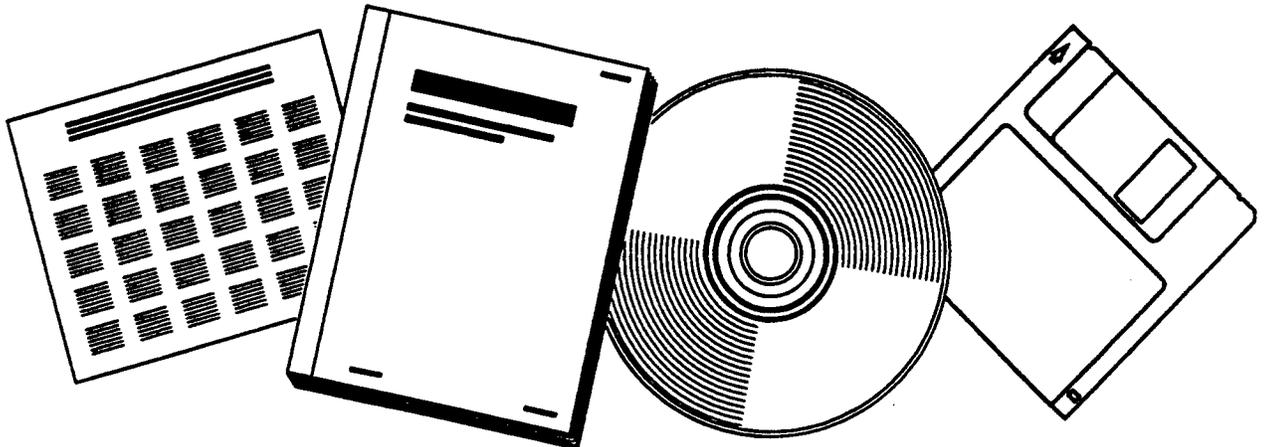


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SAFETY IMPACT ISSUES OF JOB-ASSOCIATED SLEEP

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Safety Impact Issues of Job-Associated Sleep

September 1997



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Safety Impact Issues of Job- Associated Sleep

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13. ABSTRACT (Maximum 200 words) This research investigated the safety impact issues of job-associated sleep in truck drivers. The research focused on the anonymous survey of professional truck drivers. Information was gathered regarding perception of driving performance and its relationship to sleep on the road. In addition to the survey, detailed information was gathered on a typical sleeper berth used by 65% of the respondents. All recommendations address issues that were identified by less than 85% of the respondents in the questionnaire. Thus, the potential impact of these recommendations may be low due to the small response sample of professional drivers. First, drivers should be medically screened and treated if necessary for sleep disorders. Second, special training and education is needed to help drivers improve their strategies to overcome fatigue and obtain higher and/or greater quantity of sleep. Third, the presence of sleep deprivation in drivers, as a result of many contributing factors, indicates a need for a comprehensive design model for work-rest cycle planning. Fourth, the physical discomforts reported by drivers need additional investigation to determine the sources of exposure in order to facilitate exposure elimination or reduction.			
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EXECUTIVE SUMMARY

The Center for Ergonomics and Safety Research in the Department of Industrial and Management Systems Engineering and SOMNOS Laboratories, Inc. of Lincoln, Nebraska, as a cooperative effort, completed this research investigation in March 1997. The research investigated the Safety Impact Issues of Job Associated Sleep in truck drivers. The research focused on the anonymous survey of professional truck drivers. Information was gathered regarding perception of driving performance and its relationship to sleep on the road. In addition to the survey, detailed information was gathered on a typical sleeper berth used by 65% of the respondents.

A pilot survey was completed by 10 professional drivers. A revised (final) survey was completed by 51 drivers (48 males, 3 females) employed by Nebraska trucking firms. Results from the survey indicate that (1) job conditions are acceptable to most drivers, (2) in a typical seven day period 71% of the drivers sleep away from home 5 or more "nights", (3) when away from home drivers primarily sleep in a truck sleeper berth, (4) fatigue had contributed to one accident and 10 near misses in the previous year for the 51 drivers in the sample, (5) drivers, as a group, are satisfied with their job, (6) drivers recognize fatigue as a potential problem in the transportation industry and that driver performance is degraded by fatigue, (7) drivers, in general, enjoy their profession, (8) physical discomfort was reported as "usually" or more often in the hands, forearms and elbows, and shoulder by 6%, 8%, and 16%, respectively, of the drivers, while 25% reported lower back pain, (9) sleep was disturbed in sleeper berths but only "occasionally" by noises, (10) few complaints were made about the condition of the sleeper berths, (11) poor air temperature control in the sleeper berth was the greatest concern although only expressed by 8% of the drivers and (12) a few symptoms of sleep disorders were reported.

The following recommendations are offered as a result of this investigation. All recommendations address issues that were identified by less than 8% of the respondents in the questionnaire. Thus, the potential impact of these recommendations may be low due to the small response sample of professional drivers. First, drivers should be medically screened and treated if necessary for sleep disorders. Second, special training and education is needed to help drivers improve their strategies to overcome fatigue and obtain higher and/or greater quantity of sleep. Third, the presence of sleep deprivation in drivers, as a result of many contributing factors, indicates a need for a comprehensive design model for work-rest cycle planning. Fourth, the physical discomforts reported by drivers needs additional investigation to determine the sources of exposure in order to facilitate exposure elimination or reduction.

QUESTIONNAIRE

A. Background. It is estimated that 74% of highway accidents involving trucks are fatigue related. This questionnaire is an initial step in a data gathering process to investigate fatigue of over-the-road truckers. This questionnaire asks drivers to provide their opinions related to driver stress, job satisfaction, job performance and fatigue, musculoskeletal disorder symptoms, sleep habits, sleep disturbances, sleeper berth characteristics, sleep disorders, sleep patterns, and awake/sleep time preferences.

B. Preliminary Questionnaire. The Nebraska Motor Carriers Association provided assistance in contacting safety directors of Nebraska trucking firms. From these contacts, a total of 10 preliminary questionnaires were completed by professional drivers, from two Nebraska trucking firms. A review of the preliminary questionnaire resulted in questionnaire revision, additions, deletions and restructuring. The revised questionnaire (see Appendix A) was used for the data collection. Results from the preliminary questionnaire are discussed in Appendix D.

C. Questionnaire. The questionnaire contained 178 controlled and "open-ended" response written questions. Subjects were recruited at various Nebraska trucking firms initially by local employees such as a safety manager. Participation was voluntary. In the preliminary questionnaire, participants were given \$10.00 or a tee shirt or a baseball cap for completing the questionnaire.

Initially, no incentive was offered for participating in the final questionnaire. Telephone calls were made to Nebraska trucking firms requesting their drivers' participation and based upon the response to the telephone request, questionnaires were mailed to the firms. As the return of the questionnaires was initially poor, visits were made to the questionnaire sites to encourage participation. In addition, the incentives of a tee-shirt or baseball cap were offered.

Upon receiving a total of 51 questionnaires, solicitation was stopped. In order to be consistent, an appropriate number of tee-shirts and baseball caps were provided to trucking companies where drivers had completed the questionnaire before the incentives were offered.

A key feature of the questionnaire was the respondents anonymity. The names of the respondents were never gathered in association with a specific questionnaire. A separate list of participants was kept for the sole purpose of incentive distribution. Only professional full-time truck drivers were asked to participate.

This report details the questionnaire response results by categorical section. The sections of this report are the results of the questionnaire responses. A complete summary of the questionnaire results is provided in Appendix B. Appendix C provides the written responses to the 10 "open ended" questions on the questionnaire.

D. Questionnaire Results (51 respondents).

1. Driver Demographics (Questions 1-6)

The respondent population had the following characteristics as summarized in Table 1.

Table 1 - Driver Demographics

	Number	Mean	Mode	Range
Age (years)		44.8	48	21-64
Weight (lbs)				
Male (n = 48)		204.1	200	125-325
Female (n = 3)		184.0	-	178-189
Height (inches)				
Male (n = 48)		68.2	70	58-77
Female (n = 3)		65.0	-	62-68
Marital Status (years)				
Single	7			
Married	33			
Divorced	11			
Widowed	0			
Education				
High School Diploma or More	42			
B.S. degree	2			
B.A. degree	1			
Associate degree	1			

2. Driver Experience (Questions 7-11)

Table 2 summarizes the respondents' driving experience.

Table 2 - Driver Experience

	Mean	Mode	Range
Length (years)	16.7	18	0-46
Type of Equipment Most Often Pulled		Make of Equipment Tractor	
Tanker	19	Freightliner	33
Liquid Gas Tanker	8	GMC	2
Vacuum Tanker	2	Kenworth	11
Refrigerated Van	10	MACK	1
Dry Van	28	Peterbilt	2
Flatbed	1	Windstar	1
Other Choices	0	N/A	1
	68 *	* Multi responses made	
Company Trucks	47		
Other	4		

3. Job Conditions (Questions 12-25)

A scale from 0-10 was used for the responses of these questions. The scale used was as follows:

0-Never	6-Usually
1-Very rarely	7-Often
2-Rarely	8-Regularly
3-Seldom	9-Almost always
4-Occasionally	10-Always
5-Typically	

The key results from the respondents are listed below. These findings represent the typical opinion of most drivers. See Appendix A for the specific question. The number in parenthesis below indicates the number of the question on the questionnaire.

- a. (12) Occasionally drivers feel stressed in meeting deliveries (3.63 average response).
- b. (13) Drivers often found a place to park when they were tired (6.80 average response).
- c. (14) Drivers often stop driving and rest when they are tired (7.15 average response).
- d. (15) Most drivers do not load or unload their trucks. Seventeen (17) reported "never" and 13 reported "once a week".
- e. (16) A few drivers pay someone to load or unload their trucks. Twenty seven (52.9%) reported "never" and 9 reported "once a week".
- f. (17) Drivers stop to rest at the following:

Truck stop	46
Rest area	33
Side of Road	4
Company Site	27
Motel/Hotel	6
Other	<u>9</u> * multi responses made
Total	125

g. (18) In a typical 7 day period drivers reported sleeping in their own bed the following times:

No. of times	0	1	2	3	4	5	6	7	8	9	10
Response	14	9	13	7	2	1	1	2	0	1*	1**

*9 out of 10 times, probably meaning

** 10 out of 10 times, probably meaning

h. (19) The use of the sleeper berth was the most likely place for drivers to sleep. The following summarizes sleeper berth usage:

No. of times											
out of ten	0	1	2	3	4	5	6	7	8	9	10
Responses	4	3	0	0	1	0	3	4	4	8	24

Thus 84% (43/51) sleep in their sleeper berths at least 6 out of 10 times and 63% (32/51) sleep in their sleeper berths at least 9 out of 10 times.

- i. (20) One of the 51 respondents reported being in a fatigue related accident during the last year.
- j. (21) Ten (10) of 51 (20%) respondents indicated they had had at least one near miss related to fatigue during the last year.
- k. (22) The average number miles driven by respondents in a 7 day period was 2584 (range 850-4500).
- l. (23) The average number of hours driven by respondents in a 7 day period was 55.7 (range 9 to 70, mode 60).
- m. (24) Thirty-nine (39) of 51 (76%) drivers reported that they had not violated the daily hours of service regulation during the last seven days.
- n. (25) Thirty-eight (38) of 51 (75%) drivers reported that they had not violated the "70 hours in 8 day" rule during the last month.

4. Job Satisfaction (Questions 26-39)

A scale of 1-5 was used. The response scale for these questions was as follows:

- 1-Very dissatisfied
- 2-Dissatisfied
- 3-Neutral
- 4-Satisfied
- 5-Very Satisfied

In questions 26-39 responses were clearly suggestive of a high level of driver satisfaction with their profession.

- a. (26) Thirty-nine (39) of 51 (76%) were "satisfied" or "very satisfied" with being kept busy (3.76 average response).
- b. (27) Forty-six (46) of 51 (90%) were "satisfied" or "very satisfied" with the opportunity to work alone (4.25 average response).
- c. (28) Forty-one (41) of 51 (80%) were "satisfied" or "very satisfied" with the opportunity to do different things (4.04 average response).
- d.(29) The opportunity to be someone in the community had the weakest rating. Twenty two (22) of 51 were neutral while 19 of 51 were "satisfied" or "very satisfied" (3.23 average response).
- e. (30) Thirty-four (34) of 51 (67%) were "satisfied" or "very satisfied" with their boss's handling of employees (3.90 average response).
- f. (31) Thirty-seven (37) of 51 (73%) were "satisfied" or "very satisfied" with the competence of their supervisor (4.60 average response).
- g. (32) Forty-six (46) of 51 (90%) were "satisfied" or "very satisfied" with the steadiness of their employment (4.29 average response).
- h. (33) Only 18 of 51 (35%) were "satisfied" or "very satisfied" with their pay (3.11 average response).
- i. (34) Only 18 of 51 (35%) were "satisfied" or "very satisfied" with the opportunity for advancement (3.18 average response).
- j. (35) Thirty-seven (37) of 51 (73%) were "satisfied" or "very satisfied" with their working conditions (3.86 average response).

- k. (36) Forty-seven (47) of 51 (92%) were "neutral" (17) or "satisfied" or "very satisfied" with how co-workers got along with each other (3.62 average response).
- l. (37) Forty (40) of 51 (78%) were "satisfied" or "very satisfied" with their feeling of accomplishment from their job (3.88 average response).
- m.(38) Forty-five (45) of 51 (88%) were "satisfied" or "very satisfied" with how they feel about their work (4.02 average response).
- n. (39) Other responses are contained in Appendix C.

5. Driver Performance (Questions 40-55).

Respondents indicated a very low incidence of difficulty in driving when tired or fatigued. In answering questions 40-53 respondents were to assume that they were tired. The 0-10 scale was used.

- | | |
|----------------|-----------------|
| 0-Never | 6-Usually |
| 1-Very rarely | 7-Often |
| 2-Rarely | 8-Regularly |
| 3-Seldom | 9-Almost always |
| 4-Occasionally | 10-Always |
| 5-Typically | |

- a. (40) Only 2 respondents reported that other vehicles appear unexpectedly "regularly" (2.29 average response)
- b. (41) Only 1 respondent reported that they "often" had difficulty judging the speed of the vehicle in front of them (2.06 average response).
- c. (42) All respondents except one indicated that difficulty in judging the speed of oncoming vehicles occurs "occasionally" or less often (1.92 average response).
- d. (43) All but 1 respondent reported that "occasionally" did they have difficulty in judging the speed of following traffic (1.66 average response).
- e. (44) All respondents except two reported that "occasionally" or less often did they have difficulty reading gages in the vehicle (1.06 average response).
- f. (45) All respondents except two reported that "occasionally" or less often did they have difficulty reading road signs (1.82 average response).

- g. (46) All but 2 respondent reported that "occasionally" or less often did they misperceive things (1.20 average response).
- h. (47) Thirty-four (34) of 51 (67%) respondents "never" or "very rarely" had difficulty maintaining speed. One respondent reported always having difficulty (1.76 average response).
- i. (48) All respondents reported "occasionally" or less often drifting out of their lane (1.43 average response).
- j. (49) Twenty-six (26) of 51 (51%) reported "never" having difficulty driving in reverse (1.06 average response).
- k. (50 & 51) All respondents reported "occasionally" or less often having difficulty in making right/left turns (.80 & .75 average responses).
- l. (52) All respondents reported "occasionally" or less often having difficulty maneuvering in traffic (1.00 average response).
- m.(53) Forty-six (46) of 51 (90%) reported "rarely" or less often driving too near vehicles ahead (1.12 average response).
- n. (54) Forty-two (42) of 51 (82%) reported "occasionally" or less often getting bored while driving (3.37 average response).
- o. (55) Based upon respondents' average opinion, lack of sleep or fatigue is a problem in the transportation industry "typically" (5.11 average response). The summary of responses are:

WordScale	N	VR	R	S	O	T	U	O	R	AA	A
Scale	0	1	2	3	4	5	6	7	8	9	10
Responses	2	0	2	3	19	6	4	6	5	9	0

For questions 56 & 57, the following scale was used:

- 0-Unacceptable
- 1-Very poor
- 2-Poor
- 3-Marginal
- 4-Fair
- 5-Acceptable
- 6-Good
- 7-Very good
- 8-Outstanding
- 9-Excellent
- 10-Exceptional

- p. (56) Forty-two (42) of 51 (82%) of respondents rated their overall driving performance when tired as "acceptable" or better (5.56 average response).
- q. (57) All respondents (100%) rated their overall driving performance as "acceptable" or better when fully alert. Nine (9) of 51 (18%) rated their performance as "exceptional" when fully alert (8.01 average response).
- r. (58) Other responses are contained in Appendix C.

6. Driving Stress (Questions 59-74).

In general, respondents are confident of their ability to handle driving stress. The 0-10 scale as given below was used in the questions 59-74:

0-Never	6-Usually
1-Very rarely	7-Often
2-Rarely	8-Regularly
3-Seldom	9-Almost always
4-Occasionally	10-Always
5-Typically	

- a. (59) Thirty-six (36) of 51 (71%) are "rarely" or less often distracted by talking when driving in heavy traffic (1.82 average responses).
- b. (60) Forty-eight (48) of 51 (94%) of respondents reported flashing their lights or blowing their horn "occasionally" or less often in anger (1.96 average response).
- c. (61) Forty-six (46) of 51 (90%) of respondents "occasionally" or less often picture (visualize) themselves in an accident (2.20 average response).
- d. (62) Forty-five (45) of 51 (88%) of the respondents enjoy driving "usually" or more often (7.51 average response).
- e. (63) Thirty-seven (37) of 51 (73%) of the respondents reported that driving is stressful "occasionally" or less often (4.14 average response).
- f. (64) Twenty-nine (29) of 51 (57%) of the respondents reported that driving is dangerous "occasionally" or less often (5.06 average response).
- g. (65) Forty-two (42) of 51 (82%) reported that "seldom" or less frequently did they drive aggressively because of being angry or being in a bad mood (2.12 average response).

- h. (66) Thirty-five (35) of 51 (69%) reported that "occasionally" or more often they worry about driving in bad weather (4.25 average response).
- i. (67) Thirty-three (33) of 51 (65%) reported that "regularly" or more often they feel confident in their ability to avoid an accident (7.72 average response).
- j. (68) Thirty-five (35) of 51 (69%) reported that "occasionally" or less often that they are annoyed by traffic signals turning red ahead of them (3.96 average response).
- k. (69) Thirty-four (34) of 51 (67%) reported "occasionally" or less often that they are more tense on an unfamiliar road (4.67 average response).
- l. (70) Forty-nine (49) of 51 (96%) reported "occasionally" or less often do they find it difficult to control their temper when driving (2.22 average response).
- m.(71) Thirty-six (36) of 51 (71%) reported "occasionally" or less often are they annoyed when driving behind a slow moving vehicle (4.10 average response).
- n. (72) Thirty-nine (39) of 51 (76%) reported "occasionally" or less often do they feel anxiety when driving in heavy traffic (3.24 average response).
- o. (73) Forty-three (43) of 51 (84%) reported "occasionally" or less often is night driving stressful (2.94 average response).
- p. (74) Forty-six (46) of 51 (90%) reported that "occasionally" or less often do they feel under stress while driving (3.04 average response).
- q. (75) Other responses are contained in Appendix C

7. Physical Disorders (Questions 76-81).

Only a limited amount of physical disorders were reported by the respondents. The 0-10 response scale shown below was used.

0-Never	6-Usually
1-Very rarely	7-Often
2-Rarely	8-Regularly
3-Seldom	9-Almost always
4-Occasionally	10-Always
5-Typically	

- a. (76) Forty-two (42) of 51 (82%) reported "very rarely" or "never" experiencing numbness or pain in the hands (0.96 average response).
- b. (77) Thirty-three (33) of 51 (65%) reported "very rarely" or never"experiencing pain or soreness in the forearms or elbows (1.47 average response).
- c. (78) Forty-three (43) of 51 (84%) reported "occasionally" or less often experiencing shoulder pain. Thirteen (13) of 51 (25%) did report "occasional" shoulder pain (2.49 average response).
- d. (79) Thirty-eight (38) of 51 (75%) reported that pain in the extremities "never" caused them to be awakened while sleeping. One (1) reported being awakened "often" by extremity pain (.80 average response).
- e. (80) Thirty-nine (39) of 51 (76%) reported that pain in the extremities "never" interfered with daily activities. One (1) reported that extremity pain "regularly" interfered with daily activities (.55 average response).
- f. (81) Only 2 of 51 reported any use of medical treatment for extremity pain ("very rarely" and "seldom") (.078 average response).
- g. (82) Physical discomfort that does occur can occur at any time and does not occur more frequently at any particular time.
- h. (83) In the 51 respondents the following was reported: 1 CTS surgery, 1 ganglionic cyst, 1 case of tendinitis, 1 case of thoracic outlet syndrome, 13 (25%) cases of lower back pain and 1 back surgery.
- i. (84) Other information is summarized in Appendix C.

8. Sleep Habits (Questions 85 - 116).

- a. (85) The following are the preferred positions when initially attempting to go to fall asleep.

	Side	Stomach	Back	Total
Responses	40	6	11	57 * multiple responses

- b. (86,87, & 88) Total hours of sleep per day reported were:

	Average	Range
Home	7.86	6-12
Away from Home	6.96	5-12
Home (waiting for load)	7.15	0-18

- c. (89 & 90) The times of the day for going to sleep varies substantially whether working or on a day off. However, the majority of the respondents indicated that they go to sleep in the PM or early AM.
- d. (91 & 92) In getting up, more respondents were more likely to get up in early morning hours when they were working.
- e. (93) The time (minutes) to fall asleep was reported as:

	Average	Modes	Range
Responses	17	10,15	1-120

- f. (94) The number of times respondents wake up during sleep was:

	Average	Mode	Range	Never
Responses	1.5	1	1-15	8

- g. (95) If awakened during sleep, the time (in minutes) awake was reported as:

	Average	Mode	Range
Responses	5.9	5	0-30

- h. (96) Respondents, who were awakened during sleep reported that it occurred:

	Part of Sleep			Total
	Start	Middle	End	
Responses	5	39	11	55 *multiple responses

- i. (97) Respondents who were awakened 35 of 51 (69%) reported using the bathroom and going back to sleep while 17 of 51 (33%) reported simply going back to sleep.
- j. (98) Most respondents remain in bed for a few minutes after waking up. The response to this question was as follows:

	Average	Mode	Range
Responses	8.3	10	0-120

Questions 99-112 used a rating scale as given below:

0-Never	6-Usually
1-Very rarely	7-Often
2-Rarely	8-Regularly
3-Seldom	9-Almost always
4-Occasionally	10-Always
5-Typically	

- k. (99 & 100) Only 10 of 51 "never" sleep with someone else in their bed while at home, but 39 of 51 "never" sleep with someone else in the sleeper berth when away from home (6.86 and .55 average responses).
- l. (101) Forty (40) of 51 (78%) "never" sleep while someone else is driving. Two (2) of 51 regularly sleep while someone else is driving (0.63 average response).
- m.(102)Thirty-three (33) of 51 (65%) report "always" sleeping alone while at work (8.06 average response).
- n.(103) Respondents report sleeping with the truck running more often than not but a strong trend was not reported. Twelve (12) of 51 (24%) reported only "occasionally" (mode) sleeping with the truck running. (5.78 average response).
- o.(104) Twenty (20) of 51 (39%) respondents reported "never" or "very rarely" drinking regular coffee or tea within two hours of going to bed (3.59 average response).
- p.(105) Seventeen (17) of 51 (33%) respondents reported "never" or "very rarely" watching TV to fall asleep (3.31 average response).
- q.(106) Forty-four (44) of 51 (86%) respondents reported taking a nap "occasionally" or less often throughout a day (3.02 average response).
- r.(107) Forty-six (46) of 51 (90%) respondents reported feeling tired at work "occasionally" or less often (3.55 average response).
- s.(108) On average, drivers reported "typically" feeling refreshed after a 10 minute nap (4.82 average response).
- t.(109) Forty-one (41) of 51 (80%) respondents reported feeling refreshed after sleep "usually" or more often (7.20 average response).

- t.(109) Forty-one (41) of 51 (80%) respondents reported feeling refreshed after sleep “usually” or more often (7.20 average response).
- u.(110) Forty-eight (48) of 51 (94%) respondents reported feeling drowsy or tired after sleeping "occasionally" or less often (2.82 average response).
- v.(111 & 112) With respect to taking drugs or medication to assist in staying awake or falling asleep, respondents reported: Only 6 of 51 (12%) use medication to stay awake, and only 1 used medication to go to sleep (.31 and .059 average responses).
- w.(113) Forty (40) of 51 (78%) drink at least some coffee each day. Twenty-three (23) of 51 (45%) use nicotine daily.
- x.(114) If respondents are drowsy or tired after sleeping, the feeling of drowsiness would last .5 to 1 hour (32 of 51 (63%) reported).
- y.(115 & 116) Other information is provided in Appendix C.

9. Sleep Disturbances (Questions 117-126)

The majority of responses indicated that sleep disturbance is not a regular experience. The 0-10 scale used is given below:

0-Never	6-Usually
1-Very rarely	7-Often
2-Rarely	8-Regularly
3-Seldom	9-Almost always
4-Occasionally	10-Always
5-Typically	

- a.(117)Thirty-seven (37) of 51 (73%) respondents reported that people talking disturbed their sleep “very rarely” or "never" (1.16 average response).
- b.(118) Forty-eight (48) of 51 (94%) respondents reported "occasionally" or less often did noise from other trucks disturb their sleep (2.24 average response).
- c.(119) Thirty-seven (37) of 51 (73%) respondents reported “very rarely” or "never" did noise from their own truck disturb their sleep (1.27 average response).
- d.(120) Forty-six (46) of 51 (90%) respondents reported that "occasionally" or less often did other noises outside their truck disturb their sleep (2.31 average

- e.(121) Thirty (30) of 51 (59%) respondents reported that “very rarely” or “never” did outside lights disturb their sleep (1.59 average response).
- f.(122) Thirty-eight (38) of 51 (75%) respondents reported that “very rarely” or “never” did vibration disturb their sleep (1.24 average response).
- g.(123) Forty-two (42) of 51 (82%) respondents reported that “rarely” or less often did outside odors disturb their sleep (1.37 average response).
- h.(124) Forty-five (45) of 51 (88%) respondents reported that "occasionally" or less often did a hot air temperature disturb their sleep (3.33 average response).
- i.(125) Forty-six (46) of 51 (90%) respondents reported that "occasionally" or less often did a cold air temperature disturb their sleep (2.80 average response).
- j.(126) Forty-six (46) of 51 (90%) respondents reported that "rarely" or less often did movement by a bed partner disturb their sleep (0.72 average response).
- k.(127) Forty-five (45) of 51 (90%) respondents "never" use ear plugs to reduce noise disturbance (0.41 average response).
- l.(128) Nineteen (19) of 51 (27%) respondents reported that light barriers are used “regularly” or more often (5.23 average response).
- m.(129) Thirty-four (34) of 51 (67%) respondents reported that "occasionally" or less often does air temperature affect falling asleep in a truck sleeper (4.07 average response).
- n.(130) Forty-five (45) of 51 (88%) respondents reported that curtains were the light barriers used.
- o.(131,132,& 133) The respondents reported the following regarding sleeper berths:

Size Responses	Too Wide 0	Too Narrow 7	Too Long 0	Too Short 4	Okay in Width 42	Okay in Length 42
Mattress Firmness Responses	Too Hard 5		Too Soft 3		Okay 42	
Mattress Padding Responses	Too Thick 1		Too Thin 8		Okay 41	

p. (134 & 135) Other information is summarized in Appendix C.

10. Sleep Disorders (Questions 136-159).

Only a few respondents reported frequently occurring symptoms of any sleep disorder. The scale from 0-10 as shown below was used.

0-Never	6-Usually
1-Very rarely	7-Often
2-Rarely	8-Regularly
3-Seldom	9-Almost always
4-Occasionally	10-Always
5-Typically	

- a.(136)All respondents reported that "seldom" or less often did shortness of breath awaken them. Thirty-four (34) of 51 (81%) reported "never" having the shortness of breath awakenings (0.35 average response).
- b.(137)Thirty-six (36) of 51 (86%) respondents reported "never" being awakened by gasping (0.27 average response).
- c.(138)Thirty-three (33) of 51 (78%) respondents reported "never" being awakened by breathing problems (0.43 average response).
- d.(139)Thirty-five (35) of 51 (69%) respondents reported "never" falling asleep during working hours (0.78 average response).
- e.(140) Only 7 of 51 (14%) respondents reported that they "never" snore. No trend was apparent from the responses. "occasionally" was the mode response (4.10 average response).
- f.(141) Eighteen (18) of 51 (35%) respondents reported that they "never" disturb others with their snoring (2.74 average response).
- g.(151) Forty-four (44) of 51 (86%) respondents reported "never" falling sleep while driving (0.24 average response).
- h.(143)Twenty-seven (27) of 51 (53%) respondents reported "never" having trouble at work because of sleepiness (0.86 average response).
- i.(144) Thirty-five (35) of 51 (69%) respondents reported "never" feeling afraid of going to sleep (0.98 average response).

- j.(145) Forty-five (45) of 51 (88%) respondents reported "never" falling asleep involuntarily (0.29 average response).
- k.(146) Forty-nine (49) of 51 (98%) respondents reported "never" falling asleep during a physical effort (0.02 average response). One no report.
- l.(147) Forty-seven (47) of 51 (92%) respondents reported "never" having a loss of muscle tone when extremely emotional (0.20 average response).
- m.(148)Forty-seven (47) of 51 (92%) respondents reported "never" feeling paralyzed when waking up or falling asleep (0.25 average response).
- n.(149)Twenty-six (26) of 51 (51%) respondents report "never" having vivid dreams upon awakening or falling asleep (1.73 average response).
- o.(150)Thirty-six (36) of 51 (71%) respondents reported "never" or very rarely noticing parts of their body jerk during sleep (1.20 average response).
- p.(151)Thirty-four (34) of 51 (67%) respondents reported "never" kicking during sleep (0.78 average response).
- q.(152)Twenty-eight (28) of 51 (55%) respondents reported "never" having aching feeling in the legs (1.06 average response).
- r.(153) Twenty-nine (29) of 51 (57%) respondents reported "never" excessively sweating during sleep (0.88 average responses).
- s.(154) Twenty-one (21) of 51 (41%) respondents reported "never" waking up with sore or achy muscles (1.69 average responses).
- t.(155) Thirty-nine (39) of 51 (76%) respondents reported "never" or "very rarely" or "rarely" waking up with pain in the neck, spine or joints (1.75 average response).
- u.(156)Thirty-one (31) of 51 (61%) respondents reported "never" or "very rarely" having thoughts racing through their mind when falling asleep (2.14 average response).
- v.(157)Twenty-two (22) of 51 (43%) of respondents reported "never" feeling sad or depressed (1.84 average response).
- w.(158)Seventeen (17) of 51 (33%) of respondents reported "never" having anxiety (2.43 average response).
- x.(159) Other information is contained in Appendix C.

SLEEPER CAB DESCRIPTION

Measurements, photographs, and observation notes were taken on a 1996 Freightliner "70" Condo sleeper cab. This model is representative of what is used in major trucking companies and was the tractor most frequently driven by questionnaire respondents.

The "70" Condo is a two-bunk sleeper. The overall dimensions (inside wall to inside wall) of the sleeper are 85 1/2" wide, 63" deep, with a height of 88 1/2" at the ceiling's lowest point. The walls of the sleeper are covered in a light grey, lightly padded fabric.

The front of the sleeper is partitioned from the driving cab by a pair of heavy curtains that join in the middle with a one inch wide velcro strip. The velcro strip is difficult to align and close, but with closure maintains a tight seal. The curtains hang from a track in the roof of the cab, and are two inches short of reaching the floor. There are snaps along the edges of the curtain that attach them securely to the wall. The curtains are black vinyl on the side that faces the sleeper, and light grey fabric facing the driving cab.

The lower mattress is mounted on a 13" tall riser that contains a storage space. The bed has hydraulic hinges that allow the sleep surface to be raised like the lid of a toy chest, providing storage access. This storage space measures 39 1/2" x 84" x 13", and is divided into three compartments.

The lower mattress measures 79 1/2" long by 38 1/2" wide, and is 7" thick. The mattress is quite firm, and has three "seat belts" with a net to secure a sleeper while the tractor is in motion. The mattress is covered in a cloth ticking and can be made up with sheets and blankets like a traditional bed. The mattress is placed on a flat, hard surface, and there are no springs. A 40" opening, flanked by built-in cabinets, allows access to the lower bunk.

The upper bunk is a "Murphy" style bed which folds down from the back wall of the sleeper. The mattress is a 1" thick polyester fiber pad covered with a black nylon/cotton ticking. The mattress lays on a cambric covered, "springy" platform, and is secured with velcro strips. The dimensions of this mattress are 71" by 31".

There is a 30 1/2" clearance between the two bunks, when the upper mattress is in the "down" position. Between the upper bunk and the ceiling there is a 43" clearance. The upper bunk has handlebars to allow the sleeper to pull up into the bunk. This top mattress would be sufficient for short naps, but would not be comfortable for extended sleep.

Both bunks are equipped with single fluorescent lights, with individual ON/OFF switches. The lower bunk has an 18" tube mounted on the back wall. The upper bunk has two 18" tubes mounted end to end on the back wall. Each bunk has its own directional reading light with an ON/OFF switch. There are no rheostat controls for the lighting.

The lower bunk has a control panel mounted in the corner above the head of the mattress. This panel has the directional reading light with switch, volume control for the stereo speakers, temperature control, and fan speed control. The control panel is approximately 23" above the mattress.

Stereo speakers are mounted in the upper corners of the sleeper and the control panel has a knob for "left-right" balance adjustment. Two vents are located in the corner of the sleeper which would be the right side, foot of the each bunk. Both vents are directional and measure 2 1/2" wide by 6" tall. The lower vent is 10" above the bottom bunk, and the upper vent is approximately the same distance above the upper bunk. There is a push-button style cigarette lighter near the head of the lower mattress, on the wall.

There are two windows in the sleeper, one on each side (head and foot) of the cab. They are approximately 45" above the lower bunk's mattress. Each window can be slid open, and both have screens. The windows can be covered, to attenuate light, with cloth, snap-on curtains which are easily put into place.

Cabinets are built in around the mattresses and appear adequate for storage of clothing, shoes or boots, toiletry items, and other personal effects. Two lower cabinets have no shelves and can be utilized for storing soft luggage. The upper cabinets have shelving. The lower cabinet at the head of the bed has a counter top space that measures 22 1/2" by 19". This space could be used for an alarm clock, radio, CPAP (Continuous Positive Airway Pressure) machine, or other personal items.

BACKGROUND ON "OWLS AND LARKS" SURVEY

All humans have biological rhythms (called circadian rhythms) that cycle approximately every 24 hours. The sleep-wake cycle is an example of such a rhythm. Core body temperature and certain hormones (such as cortisol, prolactin, serotonin, and melatonin) also fluctuate and are known to effect both sleep and waking drives in the brain. In humans, circadian physiological rhythms are synchronized with external environmental rhythms such as light. These external cues are called zeitgebers or "time givers".

Circadian rhythms can be desynchronized as a result of a mismatch between internal sleep-wake drives and external cues. These disturbances manifest themselves by difficulties with awakening, insomnia, hypersomnia, and increased sensitivity to fatigue in performing cognitive and physical tasks. Some individuals are more susceptible to these disturbances than others.

Shiftwork and rotating shifts can produce sleep-wake circadian rhythm disturbances in workers. Generally speaking, shiftworkers are more sleep deprived than non-shiftworkers and this chronic deprivation, especially in those individuals who are more sensitive, can result in impaired performance, increased risk of accidents, increased bodily complaints, poor morale, and excessive use of sleeping pills, stimulants, and alcohol. Accident and injury rates, death rates, divorces rates, spousal and child abuse rates are higher in the shiftworker population than in the non-shiftworker

population. Circadian rhythm disturbances and shiftwork adjustment is more of a problem for older workers compared to younger workers.

Helping workers and supervisors identify and understand biological rhythm differences in individuals can be useful in designing more appropriate work schedules for better performance and reduction of accident and injury risk. Proper adjustment to shiftwork can also increase work satisfaction and improve overall worker health.

The "Owls and Larks" survey is adapted from "A Self-Assessment Questionnaire to Determine Morningness-Eveningness in Human Circadian Rhythms", by J.A. Horne and O. Osterberg; *International Journal of Chronobiology*, Vol. 4, 97-110, 1976. This self-assessment instrument consists of 19 questions related to sleep-wake behavior, time of day, and degree of agreement with a behavioral description on a four-point scale. The scores are added together and the sum is converted into a five-point "Morningness-Eveningness" scale:

Definitely Morning Type 70-86
Moderately Morning Type 59-69
Neither Type 42-58
Moderately Evening Type 31-41
Definitely Evening Type 16-30

Test scores that indicate *Moderately Morning Type*, *Neither Type*, or a *Moderately Evening Type* account for about 60% of the adult population distribution. These types are more likely to be able to manipulate their sleep-wake cycle to adjust to weekends, shiftwork, or jet lag with only a moderate degree of difficulty.

Test scores that indicate *Definitely Morning Type* are more likely to experience performance peaks in the early morning, with performance falling off rapidly as evening approaches. These individuals are more likely to have extreme difficulty in adjusting to shiftwork, jet lag, and changing schedules.

Test scores that indicate *Definitely Evening Type* are more likely to experience performance peaks in the evening and at night. Adjustment to shiftwork and to jet lag is usually easier for these individuals compared to most people.

The extreme types, Owls and Larks, often find it difficult to stay in synch with the other members of their families or with work schedules. It is possible for these individuals to reset their circadian clocks so that they fall into a more normal range. In all cases, it is usually not beneficial to "fight" the body's biological clock. The extreme types must make changes to their social and work schedules to adapt to their unique biological rhythm or they must manipulate their biological clock by using commonly accepted techniques.

CONCLUSIONS

The following conclusions are based upon a descriptive data analysis of 51 anonymous questionnaires from professional truck drivers employed by Nebraska trucking firms. The data was collected during September and October 1996.

Driver Demographics and Experience. The 51 drivers (48 men, 3 women) surveyed had an average age of 44.8 years and an average of 16.7 years of driving experience. On average they probably would be considered overweight. Their average weight was 207.9 lbs for the men and 184.0 lbs for women with the average height being 69.5 inches for the males and 65.0 inches for females. Thirty-seven (88%) had a high school education or more.

Drivers most frequently pulled a tanker (28%) or a dry van (41%). The tractor driven was most frequently a Freightliner (65%) or Kenworth (22%).

Job Conditions. In general, job conditions seem to be acceptable to most respondents. The stress in meeting deliveries occurs 5 out of 10 times or more for only 9 of 51 (18%) of the respondents. Almost all drivers could find a place to park when tired. Most drivers do stop when tired. Only 8 of 51 (16%) reported loading or unloading their trucks 8 or more times per week while all others (84%) reported 4 or less times per week. Drivers primarily stop at truck stops, rest areas and company sites to rest. In a typical 7 day period, 36 of 51 (71%) drivers would sleep in their own bed 2 or less times. When drivers were away from home, they primarily slept in their sleeper berths.

One of the drivers (<2%) had had a fatigue related accident during the last year but 10 (20%) reported at least one near miss during the last year that they attributed to fatigue. The drivers, on average, drove 2584 miles per 7 days in 55.7 hours of driving.

Thirty-nine (76%) drivers reported that they did not violate the daily hours of service during the last seven days. During the last 31 days, thirty-eight (75%) drivers reported that they did not violate the "70 hour in 8 day" rule.

Job Satisfaction. As a group the drivers were satisfied with their job. One respondent was dissatisfied with many aspects of the profession.

Driver Performance. When tired or feeling fatigue, only 2 drivers (<4%) reported having regularly degraded driving performance, most drivers described driving performances as being degraded by fatigue rarely, very rarely, or never. Drivers get bored sometimes but only one reported that it occurs "almost always". Drivers in general did indicate that they believed lack of sleep or fatigue is a "typical" problem in the transportation industry.

When drivers are tired, they report their performance is not as good as when they are fully alert. But their performance, when tired, was rated as at least "fair" or better by 49 of 51 respondents. Only two driver believed their performance would be rated as "marginal" when they were tired.

Driving Stress. Forty-five of the 51 drivers indicated a strong level of enjoyment in driving (average response 7.51 of 10). One driver indicated that driving was enjoyed only "very rarely". Two drivers reported that driving was "always" stressful and four drivers reported that driving was "always" dangerous. Four drivers indicated that they "always" picture themselves in an accident. Driving in bad weather appears to be a concern but it is not a major cause of worry for most.

Only 5 of 51 reported that occasionally or less often did they feel confidence in their ability to avoid an accident. Only one reported having significant difficulty controlling their temper during driving.

Physical Disorders. The reported occurrences of physical discomfort for drivers is limited but does exist. Seventeen of 51 reported hand discomfort with 2 of those being "often" and "regularly". Twenty-four drivers reported discomfort in forearms or elbows. Thirty reported shoulder discomfort. One reported that their shoulder and arm pain "always" awakened their sleep and regularly interfered with their daily activities. Lower back pain was reported as the greatest source of discomfort (13 of 51, 25%).

Sleep Habits. Respondents typically (40 of 51, 78%) slept on their side and the average driver slept more hours when at home unless they were waiting for a load. At home the average was 7.86 hours of sleep per day (7.15 if waiting for a load at home) and 6.96 hours of sleep per day on the road.

Respondents fell asleep, on average, in 17 minutes but 1 driver indicating two hours was typical. Most woke up during sleep 1 or 2 times a night but one reported 15 times per night was typical. When drivers do wake up, it is usually during the middle of the sleep period.

Only 2 reported "regularly" (9 others, but less frequently) sleeping while someone else is driving. Only 6 reported any use of medication to help them stay awake or go to sleep.

Drivers report regular coffee drinking (40 of 51) and use of nicotine (23 of 51).

Sleep Disturbances. Noises of all types occasionally awaken sleeping drivers. Air temperature control was reported (4 of 51) to be a "regularly" or more often occurring problem. Only a few complained about the sleeper berth (7 responses of too narrow, 4 responses of too short, 5 responses of too hard, and 3 responses of too soft).

Sleep Disorders. Although few symptoms of sleep disorders were reported, some were present. For example, 6 reported falling asleep involuntarily (1 seldom, 1 rarely, 3 very rarely, and 1 often). One reported falling asleep during a physical activity (very rarely). Four reported feeling unable to move when waking up or falling asleep (1 usually, 1 occasionally, 1 rarely, and 1 very rarely). Three reported regularly or more often feeling sad, depressed, and anxious.

RECOMMENDATIONS

In general, recommendations are based upon concerns indicated by less than 8% of the respondents in any one particular topic. The overall population that expressed some concerns is more than 8 % of the respondents since not all drivers had the same areas of concern. The recommendations are: First, drivers should be medically screened and treated if necessary for sleep disorders. Second, special training and education is needed to help drivers improve their strategies to overcome fatigue and obtain higher and/or greater quantity of sleep. Third, the presence of sleep deprivation in drivers, as a result of many contributing factors, indicates a need for a comprehensive design model for work-rest cycle planning. Fourth, the physical discomforts reported by drivers needs additional investigation to determine the sources of exposure in order to facilitate exposure elimination or reduction.

APPENDICES

APPENDIX A

QUESTIONNAIRE SAMPLE

INTRODUCTION

This questionnaire is for professional truck drivers. It was prepared by the Center for Ergonomics and Safety Research at the University of Nebraska-Lincoln. This questionnaire is an effort to determine your professional opinion about truck driving and its relationship to job satisfaction, job stress, physical discomfort, sleep habits, sleep disturbances, sleeping difficulties, and preferred working times.

The results of the questionnaire will be used to develop improved equipment and facilities in order that truck drivers will have improved quality and/or quantity of sleep.

Please do not put your name on the questionnaire. This is to be anonymously and confidentially answered. Please try to answer all questions to the best of your ability and mark only one answer unless otherwise directed to do so. This questionnaire will require approximately 45 minutes to complete.

QUESTIONNAIRE

General

1. Age (in years): _____
2. Weight (in pounds): _____
3. Height (in inches): _____
4. Gender: M or F
5. Marital Status How Long
____ Single _____
____ Married _____
____ Divorced _____
____ Widowed _____
6. What is your highest level of education? (Check all that apply)
____ Primary (K-6)
____ Secondary (7-12)
____ Driver Training
____ Safety/Fatigue Training (on topics, such as: performance, shift work,
sleep, fatigue, etc.)
____ University degree: what degree? _____
____ University courses, no degree
____ Technical or community college degree: What degree? _____
____ Technical or community college courses, no degree
____ Trade school or training program
____ Business training
____ Other: _____

Truck Driving

7. How many years have you driven a truck? _____

8. Which type of equipment do you pull the most often?

- | | |
|------------------------------|------------------------|
| _____ automobile transporter | _____ liquid gas tank |
| _____ poultry trailer | _____ pneumatic tank |
| _____ furniture van | _____ vacuum tank |
| _____ dirt trailers | _____ refrigerated van |
| _____ bulk hoppers | _____ dry van |
| _____ tanker | _____ flatbed |
| | _____ other |

9. Do you primarily drive : (Circle one)

Your own truck? A company truck? Other?

10. What truck do you primarily drive?

Make _____ Model _____ Year _____

11. If you drive a company truck, how many drivers does your company employ? _____

For questions 12, 13 and 14 please rate according to the following scale how often these activities occur?

- | | |
|----------------|-----------------|
| 0-Never | 6-Usually |
| 1-Very rarely | 7-Often |
| 2-Rarely | 8-Regularly |
| 3-Seldom | 9-Almost always |
| 4-Occasionally | 10-Always |
| 5-Typically | |

Out of 10

12. How often do you feel stressed in meeting your delivery schedule? 0 1 2 3 4 5 6 7 8 9 10

13. How frequently are you able to find a place to park your truck when you are feeling tired? 0 1 2 3 4 5 6 7 8 9 10

14. When you feel tired, how often do you stop driving and rest? 0 1 2 3 4 5 6 7 8 9 10

15. How many times do you manually load/unload your truck weekly? _____

16. How many times do you pay someone else to manually load/unload your truck weekly? _____

17. When at work, where do you most often stop your truck to sleep? (check all that apply)

- _____ truck stop
- _____ rest area
- _____ side of the road
- _____ company site (while unloading / loading)
- _____ motel/hotel
- _____ other: _____

18. For a typical 7-day period, how many times do you sleep in your own bed at home? 0 1 2 3 4 5 6 7 8 9 10

19. When you do not sleep in your own bed at home, out of 10 times how many times do you sleep in one of the following:

motel room bed	0	1	2	3	4	5	6	7	8	9	10
motel room floor	0	1	2	3	4	5	6	7	8	9	10
truck stop chair	0	1	2	3	4	5	6	7	8	9	10
truck stop recliner	0	1	2	3	4	5	6	7	8	9	10
truck stop cot	0	1	2	3	4	5	6	7	8	9	10
truck stop bed	0	1	2	3	4	5	6	7	8	9	10
sleeper berth	0	1	2	3	4	5	6	7	8	9	10
driver's seat in truck	0	1	2	3	4	5	6	7	8	9	10
across the doghouse in truck	0	1	2	3	4	5	6	7	8	9	10

20. How many truck accidents related to being tired or fatigued have you had as a driver during the last year? _____

21. How many truck-accident near misses related to being tired or fatigued have you had as a driver during the last year? _____

22. How many miles do you drive a truck per week (7-day period)? _____

23. How many hours do you drive a truck per week (7-day period)? _____

24. How many times have you violated the daily hours of service regulations during the last seven days: 0 1 2 3 4 5 6 7

25. How many times have you violated the "70-hour in 8-day" rule during the last month (31 days)? _____

For questions 26-38, please rate according to the following scale how you feel about these factors on your present job.

- 1-Very dissatisfied
- 2-Dissatisfied
- 3-Neutral
- 4-Satisfied
- 5-Very satisfied

Out of 5

- | | | | | | | |
|-----|---|---|---|---|---|---|
| 26. | Being able to keep busy all the time. | 1 | 2 | 3 | 4 | 5 |
| 27. | The chance to work alone on the job. | 1 | 2 | 3 | 4 | 5 |
| 28. | The chance to do different things from time to time. | 1 | 2 | 3 | 4 | 5 |
| 29. | The chance to be somebody in the community. | 1 | 2 | 3 | 4 | 5 |
| 30. | The way my boss handles the employees. | 1 | 2 | 3 | 4 | 5 |
| 31. | The competence of my supervisor in making decisions. | 1 | 2 | 3 | 4 | 5 |
| 32. | The way my job provides for steady employment. | 1 | 2 | 3 | 4 | 5 |
| 33. | My pay and the amount of work I do. | 1 | 2 | 3 | 4 | 5 |
| 34. | The chances for advancement on this job. | 1 | 2 | 3 | 4 | 5 |
| 35. | The working conditions. | 1 | 2 | 3 | 4 | 5 |
| 36. | The way my co-workers get along with each other. | 1 | 2 | 3 | 4 | 5 |
| 37. | The feeling of accomplishment I get from the job. | 1 | 2 | 3 | 4 | 5 |
| 38. | My feeling about my work. | 1 | 2 | 3 | 4 | 5 |
| 39. | Is there anything else that we should know about that describes why you are or are not satisfied with your job? | | | | | |

Performance

For questions 40-53, please rate according to the following scale how often these activities happen when you are tired or feeling fatigued.

- | | |
|----------------|-----------------|
| 0-Never | 6-Usually |
| 1-Very rarely | 7-Often |
| 2-Rarely | 8-Regularly |
| 3-Seldom | 9-Almost always |
| 4-Occasionally | 10-Always |
| 5-Typically | |

When you are tired or feeling fatigued, how often have you....	<u>Out of 10</u>
40. Had other vehicles appear unexpectedly?	0 1 2 3 4 5 6 7 8 9 10
41. Had difficulty judging the speed of the car In front of you?	0 1 2 3 4 5 6 7 8 9 10
42. Had difficulty judging the speed of the car Approaching from the opposite direction?	0 1 2 3 4 5 6 7 8 9 10
43. Had difficulty judging the speed of the car behind you?	0 1 2 3 4 5 6 7 8 9 10
44. Had difficulty reading the gauges in your vehicle?	0 1 2 3 4 5 6 7 8 9 10
45. Had difficulty reading the signs on the road?	0 1 2 3 4 5 6 7 8 9 10
46. Found yourself perceiving things that weren't really there?	0 1 2 3 4 5 6 7 8 9 10
47. Had difficulty maintaining an appropriate speed?	0 1 2 3 4 5 6 7 8 9 10
48. Found yourself drifting out of your lane?	0 1 2 3 4 5 6 7 8 9 10
49. Had difficulty driving in reverse?	0 1 2 3 4 5 6 7 8 9 10
50. Had difficulty making right hand turn?	0 1 2 3 4 5 6 7 8 9 10
51. Had difficulty making left hand turns?	0 1 2 3 4 5 6 7 8 9 10
52. Had difficulty maneuvering your vehicle in traffic?	0 1 2 3 4 5 6 7 8 9 10
53. Driven too near the vehicle in front of you?	0 1 2 3 4 5 6 7 8 9 10

Use the same scale for questions 54 and 55:

54. How often do you get bored while driving a truck? 0 1 2 3 4 5 6 7 8 9 10
55. In your opinion, how often is lack of sleep or fatigue of truck drivers a significant problem in the transportation industry? 0 1 2 3 4 5 6 7 8 9 10

Use the following scale for questions 56 and 57:

- | | |
|----------------|----------------|
| 0-Unacceptable | 6-Good |
| 1-Very poor | 7-Very good |
| 2-Poor | 8-Outstanding |
| 3-Marginal | 9-Excellent |
| 4-Fair | 10-Exceptional |
| 5-Acceptable | |

56. How would you rate your driving performance, on a scale from 0 to 10, when tired? 0 1 2 3 4 5 6 7 8 9 10
57. How would you rate your driving performance, on a scale from 0 to 10, when fully alert? 0 1 2 3 4 5 6 7 8 9 10
58. Was there an incident when your performance in driving was influenced because of being tired? Please describe in detail.

Stress

For questions 59-74, please rate according to the following scale how often these activities occur.

- | | |
|----------------|-----------------|
| 0-Never | 6-Usually |
| 1-Very rarely | 7-Often |
| 2-Rarely | 8-Regularly |
| 3-Seldom | 9-Almost always |
| 4-Occasionally | 10-Always |
| 5-Typically | |

Out of 10

- | | | |
|-----|---|------------------------|
| 59. | How often are you distracted if someone talks to you when you are driving in heavy traffic? | 0 1 2 3 4 5 6 7 8 9 10 |
| 60. | How often do you flash your truck lights or blow your horn at other vehicles in anger? | 0 1 2 3 4 5 6 7 8 9 10 |
| 61. | How often do you think of, or picture yourself, in an accident? | 0 1 2 3 4 5 6 7 8 9 10 |
| 62. | How often do you enjoy driving? | 0 1 2 3 4 5 6 7 8 9 10 |
| 63. | How often do you feel driving is a stressful activity? | 0 1 2 3 4 5 6 7 8 9 10 |
| 64. | How often do you feel driving is a dangerous activity? | 0 1 2 3 4 5 6 7 8 9 10 |
| 65. | When you are in a bad mood or angry, how often do you drive aggressively? | 0 1 2 3 4 5 6 7 8 9 10 |
| 66. | How often does it worry you to drive in bad weather? | 0 1 2 3 4 5 6 7 8 9 10 |
| 67. | How often do you feel confident in your ability to avoid an accident? | 0 1 2 3 4 5 6 7 8 9 10 |
| 68. | How often are you annoyed when the traffic lights change to red as you approach them? | 0 1 2 3 4 5 6 7 8 9 10 |
| 69. | When driving on a new road, how often are you more tense than when the road is familiar? | 0 1 2 3 4 5 6 7 8 9 10 |
| 70. | How often do you find it difficult to control your temper when driving? | 0 1 2 3 4 5 6 7 8 9 10 |

71. How often are you annoyed when driving behind a slow-moving vehicle? 0 1 2 3 4 5 6 7 8 9 10
72. How often do you feel anxiety when driving in heavy traffic? 0 1 2 3 4 5 6 7 8 9 10
73. How often is night driving stressful?
8 9 10 0 1 2 3 4 5 6 7
74. How often do you feel under stress when driving? 0 1 2 3 4 5 6 7 8 9 10
75. Please describe any other information pertinent to your stress in relation to driving at work that you think we ought to know about.

Physical Disorders

For questions 76-81, please rate according to the following frequency scale.

- | | |
|----------------|-----------------|
| 0-Never | 6-Usually |
| 1-Very rarely | 7-Often |
| 2-Rarely | 8-Regularly |
| 3-Seldom | 9-Almost always |
| 4-Occasionally | 10-Always |
| 5-Typically | |

Out of 10

- | | | |
|-----|---|------------------------|
| 76. | Within the past month, how often have you had repeated feelings of numbness, tingling, or "pins and needles" sensations in one or both <u>hands</u> ? | 0 1 2 3 4 5 6 7 8 9 10 |
| 77. | Within the past month, how often have you had repeated feelings of soreness or pain in either <u>forearm or elbow</u> ? | 0 1 2 3 4 5 6 7 8 9 10 |
| 78. | Within the past month, how often have you had repeated feelings of pain, discomfort, burning, or tingling in your <u>shoulders</u> (right or left)? | 0 1 2 3 4 5 6 7 8 9 10 |
| 79. | Within the past month, how often have any of the above symptoms (numbness, tingling, soreness, or pain) caused you to be awakened while sleeping? | 0 1 2 3 4 5 6 7 8 9 10 |
| 80. | Within the past month, how often does discomfort in your wrist, arm, or shoulder interfere with your daily activities (driving, eating, writing, getting dressed or undressed, etc.)? | 0 1 2 3 4 5 6 7 8 9 10 |
| 81. | Within the past month, how often have you received medical treatment for this pain and/or discomfort? | 0 1 2 3 4 5 6 7 8 9 10 |
| 82. | What time(s) does your physical discomfort occur?
____ Morning
____ Afternoon
____ Evening
____ Night
____ Never | |

83. Have you ever received medical help (either company or own health care professional) or had surgery for any of the following:

	<u>Medical Help</u>	<u>Surgery</u>
Carpal Tunnel Syndrome?	Y or N	Y or N
Ganglionic Cysts?	Y or N	Y or N
Tendinitis?	Y or N	Y or N
Thoracic Outlet Syndrome?	Y or N	Y or N
Low Back Pain?	Y or N	Y or N
Other? _____		

84. Please describe any other information pertinent to your physical discomfort/injuries in relation to driving at work that you think we ought to know about.

Sleep Habits

85. What is your preferred position when attempting to go to sleep?

- _____ On your side
- _____ Stomach
- _____ Back
- _____ Sitting Up
- _____ Other: _____

86. On average, how many hours of sleep do you usually get per day when traveling for work (sleeping at home not included)? _____

87. On average, how many hours of sleep do you usually get per day when at home with time off? _____

88. On average, how many hours of sleep do you usually get per day when at home and waiting for next load? _____
89. What time do you usually go to sleep on working days? _____ AM / PM
90. What time do you usually go to sleep on off-duty days? _____ AM / PM
91. What time do you usually awaken from sleep on working days? _____ AM / PM
92. What time do you usually awaken from sleep on off-duty days? _____ AM / PM
93. How long, in minutes, does it take for you to fall asleep? _____
94. How many times do you typically wake up during sleep? _____
95. If you wake up, how long (in minutes) do you stay awake, on the average? _____
Or, do you stay up? Y or N
96. If you do awaken during your sleep (after you first fall asleep), which part(s) of your sleep period is it?
 _____ soon after falling asleep
 _____ middle of the sleep period
 _____ ending of the sleep period
97. What do you usually do when you awaken during the middle of your sleep?
 _____ watch TV or listen to radio/tape/CD
 _____ read
 _____ get up
 _____ go to the bathroom and go back to sleep
 _____ go back to sleep
 _____ eat
 _____ go to work
 _____ other: _____
98. On the average, how long (in minutes) do you stay in bed after waking up? _____

For questions 99-112, please rate according to the following frequency scale

- | | |
|----------------|-----------------|
| 0-Never | 6-Usually |
| 1-Very rarely | 7-Often |
| 2-Rarely | 8-Regularly |
| 3-Seldom | 9-Almost always |
| 4-Occasionally | 10-Always |
| 5-Typically | |

Out of 10

- | | | |
|------|--|------------------------|
| 99. | How often do you sleep with someone else in your bed at home? | 0 1 2 3 4 5 6 7 8 9 10 |
| 100. | How often do you sleep with someone else in your sleeper berth? | 0 1 2 3 4 5 6 7 8 9 10 |
| 101. | How often do you sleep while someone else is driving your truck? | 0 1 2 3 4 5 6 7 8 9 10 |
| 102. | How often do you sleep alone while at work? | 0 1 2 3 4 5 6 7 8 9 10 |
| 103. | How often do you sleep with your truck stopped but running? | 0 1 2 3 4 5 6 7 8 9 10 |
| 104. | How often do you usually drink regular coffee or tea within two hours before going to bed? | 0 1 2 3 4 5 6 7 8 9 10 |
| 105. | How often do you watch TV in bed before falling asleep? | 0 1 2 3 4 5 6 7 8 9 10 |
| 106. | How often do you take naps throughout the day? | 0 1 2 3 4 5 6 7 8 9 10 |
| 107. | How often do you feel tired while at work? | 0 1 2 3 4 5 6 7 8 9 10 |
| 108. | How often do you feel refreshed after a short (10-15 minute) nap? | 0 1 2 3 4 5 6 7 8 9 10 |
| 109. | After an average sleep period, how often do you feel refreshed? | 0 1 2 3 4 5 6 7 8 9 10 |
| 110. | After an average sleep period, how often do you feel drowsy and/or tired? | 0 1 2 3 4 5 6 7 8 9 10 |
| 111. | How often do you take drugs or medication to help you stay awake? | 0 1 2 3 4 5 6 7 8 9 10 |
| 112. | How often do you take drugs or medication to help you fall asleep? | 0 1 2 3 4 5 6 7 8 9 10 |

113. How many times per day do you consume or use the following:

Coffee (regular) _____
Tea (regular) _____
Chocolate _____
Nicotine _____
Alcohol _____
Colas (regular) _____
Over-the-counter
drugs (not related
to sleep) _____
Other drugs _____
(Prescription or other
not related to sleep)

114. If you feel drowsy and/or tired after an average sleep period, how long does it last?

_____ Hours

115. How do you cope or adapt with your changing sleep patterns? Aside from drugs (including sleeping aids, nicotine, caffeine), how do you stay awake or fall asleep promptly?

116. Please describe any other information pertinent to your sleep or wakefulness that you think we ought to know about.

Sleep Disturbances

For questions 117-126, please rate according to the following scale how often your sleep is disturbed by these factors while at work.

- | | |
|----------------|-----------------|
| 0-Never | 6-Usually |
| 1-Very rarely | 7-Often |
| 2-Rarely | 8-Regularly |
| 3-Seldom | 9-Almost always |
| 4-Occasionally | 10-Always |
| 5-Typically | |

How often is your sleep disturbed while at work by... Out of 10

- | | |
|--|------------------------|
| 117. People talking. | 0 1 2 3 4 5 6 7 8 9 10 |
| 118. Noise from trucks pulling in and out of the space near to you. | 0 1 2 3 4 5 6 7 8 9 10 |
| 119. Noises from your own truck. | 0 1 2 3 4 5 6 7 8 9 10 |
| 120. Other noises outside of your truck (such as door slamming, etc.). | 0 1 2 3 4 5 6 7 8 9 10 |
| 121. Light from the outside. | 0 1 2 3 4 5 6 7 8 9 10 |
| 122. Vibration by your own truck. | 0 1 2 3 4 5 6 7 8 9 10 |
| 123. Outside odors. | 0 1 2 3 4 5 6 7 8 9 10 |
| 124. Air temperature in your truck being too hot. | 0 1 2 3 4 5 6 7 8 9 10 |
| 125. Air temperature in your truck being too cold. | 0 1 2 3 4 5 6 7 8 9 10 |
| 126. Movement by your bed partner. | 0 1 2 3 4 5 6 7 8 9 10 |

Use the same scale for questions 127-129

- | | |
|---|------------------------|
| 127. How often do you wear ear plugs or any other device to help reduce noise disturbances? | 0 1 2 3 4 5 6 7 8 9 10 |
|---|------------------------|

If other, what device is used? _____

128. How often do you use barriers to block out the light so you can sleep better? . 0 1 2 3 4 5 6 7 8 9 10

129. How often does the air temperature in your truck affect how quickly you fall asleep? 0 1 2 3 4 5 6 7 8 9 10

130. What types of barriers do you use to block out the light?

_____ Curtains

_____ Shades

_____ Eye Mask

_____ Blinds

_____ Blankets

_____ Sun blocker

other: _____

For questions 131-133, please check all that apply.

131. The mattress in your sleeping berth is:

_____ Too wide

_____ Too narrow

_____ Too long

_____ Too short

_____ Okay in width

_____ Okay in length

132. The firmness of your sleeping berth mattress is:

_____ Too hard

_____ Too soft

_____ Okay

133. The padding of your sleeping berth mattress is:

_____ Too thick

_____ Too thin

_____ Okay

134. What things would you change to improve your sleeping berth and surroundings?

135. Are there any other areas of concern that were not mentioned above that disturb your sleep? Please describe in detail.

Sleep Issues

For questions 136-158, please rate according to the following frequency scale.

- | | |
|----------------|-----------------|
| 0-Never | 6-Usually |
| 1-Very rarely | 7-Often |
| 2-Rarely | 8-Regularly |
| 3-Seldom | 9-Almost always |
| 4-Occasionally | 10-Always |
| 5-Typically | |

How often do you...

Out of 10

- | | |
|---|------------------------|
| 136. Awaken from sleep short of breath? | 0 1 2 3 4 5 6 7 8 9 10 |
| 137. Suddenly wake up gasping for breath during the night? | 0 1 2 3 4 5 6 7 8 9 10 |
| 138. Have breathing problems during the night (observed by self or others?) | 0 1 2 3 4 5 6 7 8 9 10 |
| 139. Fall asleep during working hours? | 0 1 2 3 4 5 6 7 8 9 10 |
| 140. Snore | 0 1 2 3 4 5 6 7 8 9 10 |
| 141. Snore loudly enough that others complain? | 0 1 2 3 4 5 6 7 8 9 10 |
| 142. Fall asleep while driving? | 0 1 2 3 4 5 6 7 8 9 10 |
| 143. Have trouble at work because of sleepiness? | 0 1 2 3 4 5 6 7 8 9 10 |
| 144. Feel afraid of going to sleep? | 0 1 2 3 4 5 6 7 8 9 10 |
| 145. Fall asleep involuntarily? | 0 1 2 3 4 5 6 7 8 9 10 |
| 146. Fall asleep during physical effort? | 0 1 2 3 4 5 6 7 8 9 10 |
| 147. Experience loss of muscle tone when extremely emotional? | 0 1 2 3 4 5 6 7 8 9 10 |
| 148. Feel unable to move (paralyzed) when waking up or falling asleep? | 0 1 2 3 4 5 6 7 8 9 10 |

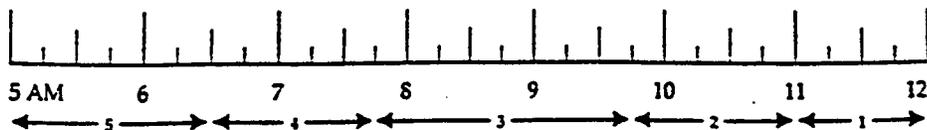
149. Experience vivid dream-like scenes upon awakening or falling asleep? 0 1 2 3 4 5 6 7 8 9 10
150. Notice that parts of your body jerk? 0 1 2 3 4 5 6 7 8 9 10
151. Kick during sleep? 0 1 2 3 4 5 6 7 8 9 10
152. Experience crawling and aching feelings in your legs? 0 1 2 3 4 5 6 7 8 9 10
153. Sweat excessively during sleep? 0 1 2 3 4 5 6 7 8 9 10
154. Wake up with sore or achy muscles? 0 1 2 3 4 5 6 7 8 9 10
155. Wake up with pain in neck, spine or joints? 0 1 2 3 4 5 6 7 8 9 10
156. Have thoughts racing through your mind? 0 1 2 3 4 5 6 7 8 9 10
157. Feel sad and depressed? 0 1 2 3 4 5 6 7 8 9 10
158. Have anxiety (worry about things)? 0 1 2 3 4 5 6 7 8 9 10
159. Please describe anything else you think we should know about sleep, fatigue and professional truck driving.

Owl and Lark Questionnaire

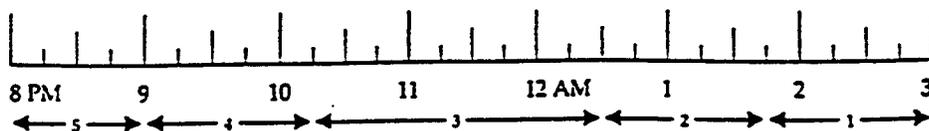
Instructions:

1. Please read each question very carefully before answering.
2. Answer ALL questions.
3. Answer questions in numerical order.
4. Each question should be answered independently of others. Do NOT go back and check your answers.
5. All questions have a selection of answers. For each question place a cross alongside ONE answer only. Some questions have a scale instead of a selection of answers. Place a cross at the appropriate point along the scale.

1. Considering only your own "feeling best" rhythm, at what time would you get up if you were entirely free to plan your day?



2. Considering only your own "feeling best" rhythm, at what time would you go to bed if you were entirely free to plan your evening?

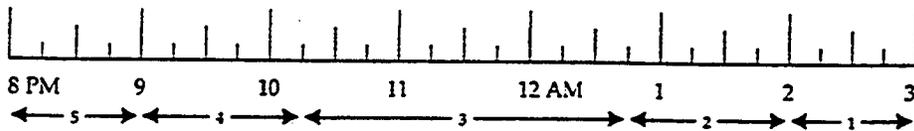


- | | |
|--|--|
| 3. If there is a specific time at which you have to get up in the morning, to what extent are you dependent on being woken up by an alarm clock? | Not at all dependent..... <input type="checkbox"/> 4 |
| | Slightly dependent..... <input type="checkbox"/> 3 |
| | Fairly dependent..... <input type="checkbox"/> 2 |
| | Very dependent..... <input type="checkbox"/> 1 |
| 4. Assuming adequate environmental conditions, how easy do you find getting up in the mornings? | Not at all easy <input type="checkbox"/> 1 |
| | Not very easy <input type="checkbox"/> 2 |
| | Fairly easy <input type="checkbox"/> 3 |
| | Very easy <input type="checkbox"/> 4 |
| 5. How alert do you feel during the first half hour after having woken in the mornings? | Not at all alert <input type="checkbox"/> 1 |
| | Slightly alert <input type="checkbox"/> 2 |
| | Fairly alert <input type="checkbox"/> 3 |
| | Very alert <input type="checkbox"/> 4 |
| 6. How is your appetite during the first half-hour after having woken in the mornings? | Very poor <input type="checkbox"/> 1 |
| | Fairly poor <input type="checkbox"/> 2 |
| | Fairly good..... <input type="checkbox"/> 3 |
| | Very good..... <input type="checkbox"/> 4 |
| 7. During the first half-hour after having woken in the morning, how tired do you feel? | Very tired <input type="checkbox"/> 1 |
| | Fairly tired <input type="checkbox"/> 2 |
| | Fairly refreshed..... <input type="checkbox"/> 3 |
| | Very refreshed..... <input type="checkbox"/> 4 |

8. When you have no commitments the next day, at what time do you go to bed compared to your usual bedtime?
- Seldom or never later..... 4
 - Less than one hour later..... 3
 - 1 - 2 hours later..... 2
 - More than two hours later..... 1

9. You have decided to engage in some physical exercise. A friend suggests that you do this one hour twice a week and the best time for him is between 7:00 - 8:00 AM. Bearing in mind nothing else but your own "feeling best" rhythm how do you think you would perform?
- Would be in good form..... 4
 - Would be in reasonable form..... 3
 - Would find it difficult..... 2
 - Would find it very difficult..... 1

10. At what time in the evening do you feel tired and as a result in need of sleep?



11. You wish to be at your peak performance for a test which you know is going to be mentally exhausting and lasting for two hours. You are entirely free to plan your day and considering only your own "feeling best" rhythm which ONE of the four testing times would you choose?
- 8:00 - 10:00 AM..... 4
 - 11:00 AM - 1:00 PM..... 3
 - 3:00 - 5:00 PM..... 2
 - 7:00 - 9:00 PM..... 1

12. If you went to bed at 11:00 PM at what level of tiredness would you be?
- Not at all tired..... 4
 - A little tired..... 3
 - Fairly tired..... 2
 - Very tired..... 1

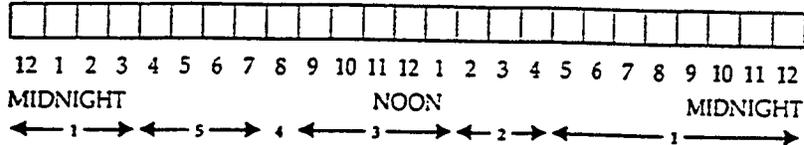
13. For some reason you have gone to bed several hours later than usual, but there is no need to get up at any particular time the next morning. Which ONE of the following events are you most likely to experience?
- Will wake up at usual time and will NOT fall asleep..... 4
 - Will wake up at usual time and will doze thereafter..... 3
 - Will wake up at usual time but will fall asleep again..... 2
 - Will NOT wake up until later than usual..... 1

14. One night you have to remain awake between 4:00 - 6:00 AM in order to carry out a night watch. You have no commitments the next day. Which ONE of the following alternatives will suit you best?
- Would NOT go to bed until watch was over..... 4
 - Would take a nap before and sleep after..... 3
 - Would take a good sleep before and nap after..... 2
 - Would take ALL sleep before watch..... 1

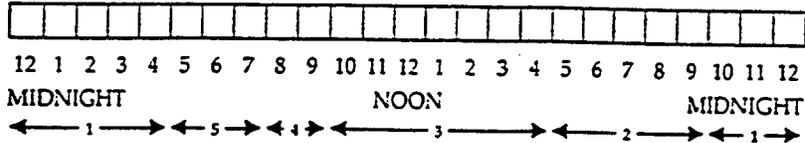
15. You have to do two hours of hard physical work. You are entirely free to plan your day and considering only your own "feeling best" rhythm which ONE of the following times would you choose?
- 8:00 - 10:00 AM..... 4
 - 11:00 AM - 1:00 PM..... 3
 - 3:00 - 5:00 PM..... 2
 - 7:00 - 9:00 PM..... 1

16. You have decided to engage in hard physical exercise. A friend suggests that you do this for one hour twice a week and the best time for him is between 10:00 – 11:00 PM. Bearing in mind nothing else but your own "feeling best" rhythm how well do you think you would perform?
- Would be in good form 1
 Would be in reasonable form 2
 Would find it difficult 3
 Would find it very difficult 4

17. Suppose that you can choose your own work hours. Assume that you worked a FIVE-hour day (including breaks) and that your job was interesting and paid by results. Which FIVE CONSECUTIVE HOURS would you select?



18. At what time of the day do you think that you reach your "feeling best" peak?



19. One hears about "morning" and "evening" types of people. Which ONE of these types do you consider yourself to be?
- Definitely a "morning" type? 4
 Rather more a "morning" than an "evening" type 3
 Rather more an "evening" than a "morning" type 2
 Definitely an "evening" type 1

Safety Impact Issues of Job Associated Sleep Environments

INFORMED CONSENT
IRB # 96-06-378 EP

This research study is to determine the professional opinion about truck driving and its relationship to job satisfaction, job stress, physical discomfort, sleep habits, sleep disturbances, and preferred working times. You must be 19 years old and a professional driver. It is estimated that it will require 45 minutes to complete the questionnaire. You are to answer the written questionnaire to the best of your ability. After you have completed the questionnaire, return it to the UNL staff person or designated company representative.

There are no risks associated with the questionnaire. Neither your name or any other identifier is to be on the questionnaire. This informed consent with your name on it will be kept separate from the questionnaire so that your responses will be anonymous. The results of the questionnaire will be reported as a summary of all responses.

No compensation is currently offered for completion of these results. A summary of the responses will be provided to your company and to you if you wish.

You may ask questions at anytime about the questionnaire. If you have any questions about your rights as a research subject that have not been answered by the investigator, you may contact the University of Nebraska-Lincoln Institutional Review Board at (402) 472-6965. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigators or the University of Nebraska. Your decision will not result in any loss of benefits to which you are otherwise entitled.

You are voluntarily making a decision whether or not to participate in this research study. Your signature certifies that you have decided to participate having read and understood the information presented. You will be given a copy of this consent form to keep.

Signature of Research Participant

Date

Michael W. Riley, Ph.D. Principal Investigator Off: (402) 472 3495

APPENDIX B

QUESTIONNAIRE RESULTS

FREQUENCY TABLES

N	Frequency	Percent	Cumulative Frequency	Cumulative Percent
01	1	2.0	1	2.0
02	1	2.0	2	3.9
03	1	2.0	3	5.9
04	1	2.0	4	7.8
05	1	2.0	5	9.8
06	1	2.0	6	11.8
07	1	2.0	7	13.7
08	1	2.0	8	15.7
09	1	2.0	9	17.6
10	1	2.0	10	19.6
11	1	2.0	11	21.6
12	1	2.0	12	23.5
13	1	2.0	13	25.5
14	1	2.0	14	27.5
15	1	2.0	15	29.4
16	1	2.0	16	31.4
17	1	2.0	17	33.3
18	1	2.0	18	35.3
19	1	2.0	19	37.3
20	1	2.0	20	39.2
21	1	2.0	21	41.2
22	1	2.0	22	43.1
23	1	2.0	23	45.1
24	1	2.0	24	47.1
25	1	2.0	25	49.0
26	1	2.0	26	51.0
27	1	2.0	27	52.9
28	1	2.0	28	54.9
29	1	2.0	29	56.9
30	1	2.0	30	58.8
31	1	2.0	31	60.8
32	1	2.0	32	62.7
33	1	2.0	33	64.7
34	1	2.0	34	66.7
35	1	2.0	35	68.6
36	1	2.0	36	70.6
37	1	2.0	37	72.5
38	1	2.0	38	74.5
39	1	2.0	39	76.5
40	1	2.0	40	78.4
41	1	2.0	41	80.4
42	1	2.0	42	82.4
43	1	2.0	43	84.3
44	1	2.0	44	86.3
45	1	2.0	45	88.2
46	1	2.0	46	90.2
47	1	2.0	47	92.2
48	1	2.0	48	94.1
49	1	2.0	49	96.1
50	1	2.0	50	98.0
51	1	2.0	51	100.0

FREQUENCY TABLES

Q1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
21	1	2.0	1	2.0
29	1	2.0	2	3.9
30	1	2.0	3	5.9
32	1	2.0	4	7.8
34	1	2.0	5	9.8
35	2	3.9	7	13.7
36	4	7.8	11	21.6
37	1	2.0	12	23.5
38	2	3.9	14	27.5
39	2	3.9	16	31.4
40	1	2.0	17	33.3
41	2	3.9	19	37.3
43	1	2.0	20	39.2
44	4	7.8	24	47.1
45	1	2.0	25	49.0
46	1	2.0	26	51.0
47	2	3.9	28	54.9
48	7	13.7	35	68.6
49	3	5.9	38	74.5
50	1	2.0	39	76.5
51	2	3.9	41	80.4
52	2	3.9	43	84.3
53	1	2.0	44	86.3
54	2	3.9	46	90.2
58	1	2.0	47	92.2
59	1	2.0	48	94.1
61	1	2.0	49	96.1
64	2	3.9	51	100.0

Q2	Frequency	Percent	Cumulative Frequency	Cumulative Percent
125	1	2.0	1	2.0
140	1	2.0	2	3.9
155	2	3.9	4	7.8
160	1	2.0	5	9.8
170	3	5.9	8	15.7
175	2	3.9	10	19.6
178	1	2.0	11	21.6
180	4	7.8	15	29.4
185	3	5.9	18	35.3
188	1	2.0	19	37.3
189	1	2.0	20	39.2
195	1	2.0	21	41.2
200	5	9.8	26	51.0
205	3	5.9	29	56.9
210	1	2.0	30	58.8
212	1	2.0	31	60.8
214	1	2.0	32	62.7
216	1	2.0	33	64.7
225	1	2.0	34	66.7
226	1	2.0	35	68.6
230	3	5.9	38	74.5
235	3	5.9	41	80.4

FREQUENCY TABLES

Q2	Frequency	Percent	Cumulative Frequency	Cumulative Percent
238	1	2.0	42	82.4
250	2	3.9	44	86.3
258	1	2.0	45	88.2
260	1	2.0	46	90.2
270	2	3.9	48	94.1
295	1	2.0	49	96.1
325	1	2.0	50	98.0
N/A	1	2.0	51	100.0

Q3	Frequency	Percent	Cumulative Frequency	Cumulative Percent
58	1	2.0	1	2.0
61	2	3.9	3	5.9
62	1	2.0	4	7.8
64	1	2.0	5	9.8
65	2	3.9	7	13.7
66	1	2.0	8	15.7
67	4	7.8	12	23.5
68	5	9.8	17	33.3
69	1	2.0	18	35.3
69.5	1	2.0	19	37.3
70	9	17.6	28	54.9
71	8	15.7	36	70.6
72	7	13.7	43	84.3
73	1	2.0	44	86.3
74	5	9.8	49	96.1
77	1	2.0	50	98.0
N/A	1	2.0	51	100.0

Q4A	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	3	6.0	3	6.0
01	46	92.0	49	98.0
N/A	1	2.0	50	100.0

Frequency Missing = 1

Q5A	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	7	13.7	7	13.7
01	25	49.0	32	62.7
02	18	35.3	50	98.0
03	1	2.0	51	100.0

FREQUENCY TABLES

Q5F	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	2	3.9	2	3.9
00.75	1	2.0	3	5.9
01	1	2.0	4	7.8
02.5	1	2.0	5	9.8
04	2	3.9	7	13.7
04.5	1	2.0	8	15.7
05	4	7.8	12	23.5
06	4	7.8	16	31.4
07	2	3.9	18	35.3
08	2	3.9	20	39.2
09	1	2.0	21	41.2
10	2	3.9	23	45.1
12	5	9.8	28	54.9
13	2	3.9	30	58.8
15	1	2.0	31	60.8
17	1	2.0	32	62.7
18	1	2.0	33	64.7
20	2	3.9	35	68.6
21	2	3.9	37	72.5
24	2	3.9	39	76.5
27	1	2.0	40	78.4
29	1	2.0	41	80.4
31	1	2.0	42	82.4
36	2	3.9	44	86.3
37	1	2.0	45	88.2
38	1	2.0	46	90.2
40	1	2.0	47	92.2
N/A	3	5.9	50	98.0
X	1	2.0	51	100.0

Q6P	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	4	7.8	4	7.8
01	47	92.2	51	100.0

Q6S	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	8	15.7	8	15.7
01	43	84.3	51	100.0

FREQUENCY TABLES

Q6D	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	30	58.8	30	58.8
01	21	41.2	51	100.0

Q6SF	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	44	86.3	44	86.3
01	7	13.7	51	100.0

Q6UD	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	47	92.2	47	92.2
01	4	7.8	51	100.0

Q6UDG	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	47	92.2	47	92.2
01	1	2.0	48	94.1
AMAAA	1	2.0	49	96.1
BA	1	2.0	50	98.0
BS	1	2.0	51	100.0

Q6UC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	48	96.0	48	96.0
01	2	4.0	50	100.0

Frequency Missing = 1

Q6TCCD	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	42	82.4	42	82.4
01	9	17.6	51	100.0

FREQUENCY TABLES

Q6DEG	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	41	80.4	41	80.4
ACCMC	1	2.0	42	82.4
ASOCTV	1	2.0	43	84.3
AUTODY	1	2.0	44	86.3
AUTOMECH	1	2.0	45	88.2
COMPSC	1	2.0	46	90.2
DMEDIC	1	2.0	47	92.2
ELTRNS	1	2.0	48	94.1
N/A	1	2.0	49	96.1
SCIDHN	1	2.0	50	98.0
TDRVIN	1	2.0	51	100.0

Q6TCCN	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	47	92.2	47	92.2
01	4	7.8	51	100.0

Q6TS	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	41	80.4	41	80.4
01	10	19.6	51	100.0

Q6BT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	45	90.0	45	90.0
01	5	10.0	50	100.0

Frequency Missing = 1

Q60TH	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	45	90.0	45	90.0
01	5	10.0	50	100.0

Frequency Missing = 1

FREQUENCY TABLES

Q60THT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	43	86.0	43	86.0
10CUES	1	2.0	44	88.0
ARMY	1	2.0	45	90.0
COMPUT	1	2.0	46	92.0
EMTPMD	1	2.0	47	94.0
FLYING	1	2.0	48	96.0
GEDDIP	1	2.0	49	98.0
GEDIP	1	2.0	50	100.0

Frequency Missing = 1

Q7	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	1	2.0	1	2.0
00.75	2	3.9	3	5.9
01	1	2.0	4	7.8
02	1	2.0	5	9.8
03	2	3.9	7	13.7
03.5	1	2.0	8	15.7
04	2	3.9	10	19.6
05	2	3.9	12	23.5
06	2	3.9	14	27.5
09	1	2.0	15	29.4
10	3	5.9	18	35.3
11	1	2.0	19	37.3
12	1	2.0	20	39.2
14	1	2.0	21	41.2
15	1	2.0	22	43.1
16	2	3.9	24	47.1
17	2	3.9	26	51.0
18	4	7.8	30	58.8
19	1	2.0	31	60.8
20	2	3.9	33	64.7
21	1	2.0	34	66.7
22	1	2.0	35	68.6
23	2	3.9	37	72.5
24	1	2.0	38	74.5
25	2	3.9	40	78.4
26	4	7.8	44	86.3
29	2	3.9	46	90.2
30	1	2.0	47	92.2
36	1	2.0	48	94.1
40	1	2.0	49	96.1
42	1	2.0	50	98.0
46	1	2.0	51	100.0

FREQUENCY TABLES

Q8AT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	51	100.0	51	100.0

Q8PT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	51	100.0	51	100.0

Q8FV	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	51	100.0	51	100.0

Q8DT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	51	100.0	51	100.0

Q8BH	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	100.0	50	100.0

Frequency Missing = 1

Q8T	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	32	62.7	32	62.7
01	19	37.3	51	100.0

Q8LGT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	43	84.3	43	84.3
01	8	15.7	51	100.0

FREQUENCY TABLES

Q8VT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	49	96.1	49	96.1
01	2	3.9	51	100.0

Q8RV	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	40	80.0	40	80.0
01	10	20.0	50	100.0

Frequency Missing = 1

Q8DV	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	23	45.1	23	45.1
01	28	54.9	51	100.0

Q8F	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	98.0	50	98.0
01	1	2.0	51	100.0

Q80TH	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	51	100.0	51	100.0

Q9PDR	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	3	5.9	3	5.9
01	47	92.2	50	98.0
N/A	1	2.0	51	100.0

FREQUENCY TABLES

Q10MKE	Frequency	Percent	Cumulative Frequency	Cumulative Percent
FR.LINER	5	9.8	5	9.8
FRLIR	28	54.9	33	64.7
GMC	2	3.9	35	68.6
KW	11	21.6	46	90.2
MACK	1	2.0	47	92.2
N/A	1	2.0	48	94.1
PETE	1	2.0	49	96.1
PTR.BILT	1	2.0	50	98.0
WSTAR	1	2.0	51	100.0

Q10MOD	Frequency	Percent	Cumulative Frequency	Cumulative Percent
378	1	2.0	1	2.0
4900	1	2.0	2	4.0
CABOVR	1	2.0	3	6.0
CDCONV	1	2.0	4	8.0
CLASIC	2	4.0	6	12.0
CLASSIC	1	2.0	7	14.0
CONDO	3	6.0	10	20.0
CONV	24	48.0	34	68.0
N/A	8	16.0	42	84.0
T-400	1	2.0	43	86.0
T800	2	4.0	45	90.0
T800AC	1	2.0	46	92.0
T800B	1	2.0	47	94.0
VOLVO	1	2.0	48	96.0
W900B	1	2.0	49	98.0
W900L	1	2.0	50	100.0

Frequency Missing = 1

Q10YR	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-01	1	2.0	1	2.0
-1	2	3.9	3	5.9
00	14	27.5	17	33.3
01	15	29.4	32	62.7
02	4	7.8	36	70.6
07	1	2.0	37	72.5
09	1	2.0	38	74.5
10	1	2.0	39	76.5
12	2	3.9	41	80.4
1990	1	2.0	42	82.4
1994	1	2.0	43	84.3
1995	2	3.9	45	88.2
1996	1	2.0	46	90.2
1997	4	7.8	50	98.0
N/A	1	2.0	51	100.0

FREQUENCY TABLES

Q11	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0008	1	2.1	1	2.1
0009	1	2.1	2	4.2
0013	1	2.1	3	6.3
0015	1	2.1	4	8.3
0020	1	2.1	5	10.4
0030	1	2.1	6	12.5
0035	3	6.3	9	18.8
0040	2	4.2	11	22.9
0058	1	2.1	12	25.0
0060	1	2.1	13	27.1
0070	1	2.1	14	29.2
0075	1	2.1	15	31.3
0120	1	2.1	16	33.3
0130	1	2.1	17	35.4
0150	4	8.3	21	43.8
0155	1	2.1	22	45.8
0160	1	2.1	23	47.9
0170	1	2.1	24	50.0
0180	1	2.1	25	52.1
0200	4	8.3	29	60.4
0215	1	2.1	30	62.5
0217	1	2.1	31	64.6
0230	1	2.1	32	66.7
0240	1	2.1	33	68.8
0300	1	2.1	34	70.8
0350	1	2.1	35	72.9
1000	1	2.1	36	75.0
4000	4	8.3	40	83.3
5000	1	2.1	41	85.4
N/A	6	12.5	47	97.9
UNSURE	1	2.1	48	100.0

Frequency Missing = 3

Q12	Frequency	Percent	Cumulative Frequency	Cumulative Percent
01	6	11.8	6	11.8
02	5	9.8	11	21.6
03	6	11.8	17	33.3
04	25	49.0	42	82.4
05	6	11.8	48	94.1
06	1	2.0	49	96.1
07	1	2.0	50	98.0
08	1	2.0	51	100.0

FREQUENCY TABLES

Q13	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	1	2.0	1	2.0
01	1	2.0	2	3.9
03	4	7.8	6	11.8
04	4	7.8	10	19.6
05	2	3.9	12	23.5
06	13	25.5	25	49.0
07	2	3.9	27	52.9
08	6	11.8	33	64.7
09	12	23.5	45	88.2
10	6	11.8	51	100.0

Q14	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	1	2.0	1	2.0
02	2	3.9	3	5.9
03	2	3.9	5	9.8
04	2	3.9	7	13.7
05	2	3.9	9	17.6
06	11	21.6	20	39.2
07	4	7.8	24	47.1
08	9	17.6	33	64.7
09	9	17.6	42	82.4
10	9	17.6	51	100.0

Q15	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	17	34.0	17	34.0
00.5	1	2.0	18	36.0
01	12	24.0	30	60.0
01.5	1	2.0	31	62.0
02	4	8.0	35	70.0
03	2	4.0	37	74.0
04	2	4.0	39	78.0
08	1	2.0	40	80.0
10	3	6.0	43	86.0
12	1	2.0	44	88.0
17.5	1	2.0	45	90.0
25	1	2.0	46	92.0
32.5	1	2.0	47	94.0
NONE	1	2.0	48	96.0
RARELY	1	2.0	49	98.0
SELDM	1	2.0	50	100.0

Frequency Missing = 1

FREQUENCY TABLES

Q16	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	27	52.9	27	52.9
01	9	17.6	36	70.6
02	2	3.9	38	74.5
02.5	1	2.0	39	76.5
03	1	2.0	40	78.4
03.5	1	2.0	41	80.4
04	1	2.0	42	82.4
07	1	2.0	43	84.3
09	1	2.0	44	86.3
10	2	3.9	46	90.2
ALWAYS	1	2.0	47	92.2
N/A	1	2.0	48	94.1
NONE	2	3.9	50	98.0
SELDM	1	2.0	51	100.0

Q17TS	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	5	9.8	5	9.8
01	46	90.2	51	100.0

Q17RA	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	18	35.3	18	35.3
01	33	64.7	51	100.0

Q17RS	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	47	92.2	47	92.2
01	4	7.8	51	100.0

Q17CS	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	24	47.1	24	47.1
01	27	52.9	51	100.0

FREQUENCY TABLES

Q17MH	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	44	88.0	44	88.0
01	6	12.0	50	100.0

Frequency Missing = 1

Q170TH	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	42	82.4	42	82.4
01	7	13.7	49	96.1
CLOT	1	2.0	50	98.0
PLOT	1	2.0	51	100.0

Q170THT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	42	82.4	42	82.4
01	1	2.0	43	84.3
10	1	2.0	44	86.3
EXRAMP	2	3.9	46	90.2
HOME	2	3.9	48	94.1
OMAHA	1	2.0	49	96.1
PARKAR	1	2.0	50	98.0
STOWNS	1	2.0	51	100.0

Q18	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	14	27.5	14	27.5
01	9	17.6	23	45.1
02	12	23.5	35	68.6
02.5	1	2.0	36	70.6
03	7	13.7	43	84.3
04	2	3.9	45	88.2
05	1	2.0	46	90.2
06	1	2.0	47	92.2
07	2	3.9	49	96.1
09	1	2.0	50	98.0
10	1	2.0	51	100.0

FREQUENCY TABLES

Q19MB	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	38	74.5	38	74.5
01	7	13.7	45	88.2
02	2	3.9	47	92.2
03	1	2.0	48	94.1
04	1	2.0	49	96.1
06	2	3.9	51	100.0

Q19MF	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	100.0	50	100.0

Frequency Missing = 1

Q19TC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	98.0	50	98.0
04	1	2.0	51	100.0

Q19TR	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	100.0	50	100.0

Frequency Missing = 1

Q19TCT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	100.0	50	100.0

Frequency Missing = 1

Q19TB	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	48	94.1	48	94.1
07	1	2.0	49	96.1
10	2	3.9	51	100.0

FREQUENCY TABLES

Q19SB	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	4	7.8	4	7.8
01	3	5.9	7	13.7
04	1	2.0	8	15.7
06	3	5.9	11	21.6
07	4	7.8	15	29.4
08	4	7.8	19	37.3
09	8	15.7	27	52.9
10	24	47.1	51	100.0

Q19DST	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	43	84.3	43	84.3
02	3	5.9	46	90.2
03	3	5.9	49	96.1
04	1	2.0	50	98.0
07	1	2.0	51	100.0

Q19ADT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	51	100.0	51	100.0

Q20	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	49	96.1	49	96.1
01	1	2.0	50	98.0
NONE	1	2.0	51	100.0

Q21	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	40	78.4	40	78.4
01	3	5.9	43	84.3
01.5	1	2.0	44	86.3
02	4	7.8	48	94.1
03	1	2.0	49	96.1
05	1	2.0	50	98.0
NONE	1	2.0	51	100.0

FREQUENCY TABLES

Q22	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0850	1	2.0	1	2.0
1750	1	2.0	2	4.0
2000	6	12.0	8	16.0
2000+	1	2.0	9	18.0
2100	3	6.0	12	24.0
2250	3	6.0	15	30.0
2350	1	2.0	16	32.0
2400	2	4.0	18	36.0
2500	9	18.0	27	54.0
2500+	1	2.0	28	56.0
2700	3	6.0	31	62.0
2800	4	8.0	35	70.0
3000	9	18.0	44	88.0
3100	1	2.0	45	90.0
3200	1	2.0	46	92.0
3300	1	2.0	47	94.0
3500	2	4.0	49	98.0
4500	1	2.0	50	100.0

Frequency Missing = 1

Q23	Frequency	Percent	Cumulative Frequency	Cumulative Percent
09	1	2.0	1	2.0
10+	1	2.0	2	4.0
20	1	2.0	3	6.0
37.5	1	2.0	4	8.0
40	3	6.0	7	14.0
45	1	2.0	8	16.0
47.5	1	2.0	9	18.0
48	1	2.0	10	20.0
50	5	10.0	15	30.0
55	6	12.0	21	42.0
60	11	22.0	32	64.0
62.5	1	2.0	33	66.0
64	1	2.0	34	68.0
65	4	8.0	38	76.0
66	1	2.0	39	78.0
70	10	20.0	49	98.0
VARIES	1	2.0	50	100.0

Frequency Missing = 1

FREQUENCY TABLES

Q24	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	39	76.5	39	76.5
01	6	11.8	45	88.2
02	2	3.9	47	92.2
03	2	3.9	49	96.1
04	1	2.0	50	98.0
05	1	2.0	51	100.0

Q25	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	38	74.5	38	74.5
01	5	9.8	43	84.3
02	2	3.9	45	88.2
02.5	1	2.0	46	90.2
05	2	3.9	48	94.1
15	1	2.0	49	96.1
20	1	2.0	50	98.0
N/A	1	2.0	51	100.0

Q26	Frequency	Percent	Cumulative Frequency	Cumulative Percent
01	1	2.0	1	2.0
02	3	5.9	4	7.8
03	8	15.7	12	23.5
04	34	66.7	46	90.2
05	5	9.8	51	100.0

Q27	Frequency	Percent	Cumulative Frequency	Cumulative Percent
02	1	2.0	1	2.0
03	4	7.8	5	9.8
04	27	52.9	32	62.7
05	19	37.3	51	100.0

Q28	Frequency	Percent	Cumulative Frequency	Cumulative Percent
01	1	2.0	1	2.0
02	1	2.0	2	3.9
03	8	15.7	10	19.6
04	26	51.0	36	70.6
05	15	29.4	51	100.0

FREQUENCY TABLES

Q29	Frequency	Percent	Cumulative Frequency	Cumulative Percent
01	2	3.9	2	3.9
02	8	15.7	10	19.6
03	22	43.1	32	62.7
04	14	27.5	46	90.2
05	5	9.8	51	100.0

Q30	Frequency	Percent	Cumulative Frequency	Cumulative Percent
02	4	7.8	4	7.8
03	13	25.5	17	33.3
04	18	35.3	35	68.6
05	16	31.4	51	100.0

Q31	Frequency	Percent	Cumulative Frequency	Cumulative Percent
01	1	2.0	1	2.0
02	5	9.8	6	11.8
03	8	15.7	14	27.5
04	24	47.1	38	74.5
05	12	23.5	50	98.0
44	1	2.0	51	100.0

Q32	Frequency	Percent	Cumulative Frequency	Cumulative Percent
02	1	2.0	1	2.0
03	4	7.8	5	9.8
04	25	49.0	30	58.8
05	21	41.2	51	100.0

Q33	Frequency	Percent	Cumulative Frequency	Cumulative Percent
01	5	9.8	5	9.8
02	7	13.7	12	23.5
03	21	41.2	33	64.7
04	13	25.5	46	90.2
05	5	9.8	51	100.0

FREQUENCY TABLES

Q34	Frequency	Percent	Cumulative Frequency	Cumulative Percent
01	4	7.8	4	7.8
02	6	11.8	10	19.6
03	23	45.1	33	64.7
04	13	25.5	46	90.2
05	5	9.8	51	100.0

Q35	Frequency	Percent	Cumulative Frequency	Cumulative Percent
02	2	3.9	2	3.9
03	12	23.5	14	27.5
04	28	54.9	42	82.4
05	9	17.6	51	100.0

Q36	Frequency	Percent	Cumulative Frequency	Cumulative Percent
01	2	3.9	2	3.9
02	2	3.9	4	7.8
03	17	33.3	21	41.2
04	22	43.1	43	84.3
05	8	15.7	51	100.0

Q37	Frequency	Percent	Cumulative Frequency	Cumulative Percent
01	1	2.0	1	2.0
02	1	2.0	2	3.9
03	9	17.6	11	21.6
04	32	62.7	43	84.3
05	8	15.7	51	100.0

Q38	Frequency	Percent	Cumulative Frequency	Cumulative Percent
01	1	2.0	1	2.0
02	4	7.8	5	9.8
03	1	2.0	6	11.8
04	32	62.7	38	74.5
05	13	25.5	51	100.0

FREQUENCY TABLES

Q40	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	6	11.8	6	11.8
01	16	31.4	22	43.1
02	8	15.7	30	58.8
03	10	19.6	40	78.4
04	7	13.7	47	92.2
05	1	2.0	48	94.1
06	1	2.0	49	96.1
08	2	3.9	51	100.0

Q41	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	3	5.9	3	5.9
01	18	35.3	21	41.2
02	14	27.5	35	68.6
03	9	17.6	44	86.3
04	5	9.8	49	96.1
05	1	2.0	50	98.0
07	1	2.0	51	100.0

Q42	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	8	15.7	8	15.7
01	12	23.5	20	39.2
02	15	29.4	35	68.6
03	9	17.6	44	86.3
04	6	11.8	50	98.0
05	1	2.0	51	100.0

Q43	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	11	21.6	11	21.6
01	12	23.5	23	45.1
02	14	27.5	37	72.5
03	9	17.6	46	90.2
04	4	7.8	50	98.0
X	1	2.0	51	100.0

FREQUENCY TABLES

Q44	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	26	51.0	26	51.0
01	15	29.4	41	80.4
02	2	3.9	43	84.3
03	2	3.9	45	88.2
04	4	7.8	49	96.1
06	1	2.0	50	98.0
07	1	2.0	51	100.0

Q45	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	13	25.5	13	25.5
01	14	27.5	27	52.9
02	8	15.7	35	68.6
03	7	13.7	42	82.4
04	7	13.7	49	96.1
06	1	2.0	50	98.0
08	1	2.0	51	100.0

Q46	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	20	39.2	20	39.2
01	20	39.2	40	78.4
02	4	7.8	44	86.3
03	1	2.0	45	88.2
04	4	7.8	49	96.1
07	2	3.9	51	100.0

Q47	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	12	23.5	12	23.5
01	22	43.1	34	66.7
02	5	9.8	39	76.5
03	3	5.9	42	82.4
04	4	7.8	46	90.2
05	2	3.9	48	94.1
06	1	2.0	49	96.1
07	1	2.0	50	98.0
10	1	2.0	51	100.0

FREQUENCY TABLES

Q48	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	15	29.4	15	29.4
01	17	33.3	32	62.7
02	8	15.7	40	78.4
03	4	7.8	44	86.3
04	7	13.7	51	100.0

Q49	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	26	51.0	26	51.0
01	9	17.6	35	68.6
02	8	15.7	43	84.3
03	4	7.8	47	92.2
04	3	5.9	50	98.0
05	1	2.0	51	100.0

Q50	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	26	51.0	26	51.0
01	17	33.3	43	84.3
02	2	3.9	45	88.2
03	4	7.8	49	96.1
04	2	3.9	51	100.0

Q51	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	26	51.0	26	51.0
01	18	35.3	44	86.3
02	2	3.9	46	90.2
03	4	7.8	50	98.0
04	1	2.0	51	100.0

Q52	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	20	39.2	20	39.2
01	20	39.2	40	78.4
02	4	7.8	44	86.3
03	5	9.8	49	96.1
04	2	3.9	51	100.0

FREQUENCY TABLES

Q53	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	21	41.2	21	41.2
01	15	29.4	36	70.6
02	10	19.6	46	90.2
03	2	3.9	48	94.1
04	2	3.9	50	98.0
08	1	2.0	51	100.0

Q54	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	2	3.9	2	3.9
01	9	17.6	11	21.6
02	7	13.7	18	35.3
03	7	13.7	25	49.0
04	17	33.3	42	82.4
05	1	2.0	43	84.3
06	4	7.8	47	92.2
07	2	3.9	49	96.1
08	1	2.0	50	98.0
09	1	2.0	51	100.0

Q55	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	2	3.9	2	3.9
02	2	3.9	4	7.8
03	3	5.9	7	13.7
04	19	37.3	26	51.0
05	6	11.8	32	62.7
06	4	7.8	36	70.6
07	6	11.8	42	82.4
08	5	9.8	47	92.2
09	4	7.8	51	100.0

Q56	Frequency	Percent	Cumulative Frequency	Cumulative Percent
03	2	3.9	2	3.9
04	7	13.7	9	17.6
05	17	33.3	26	51.0
06	16	31.4	42	82.4
07	3	5.9	45	88.2
08	3	5.9	48	94.1
09	2	3.9	50	98.0
N/A	1	2.0	51	100.0

FREQUENCY TABLES

Q57	Frequency	Percent	Cumulative Frequency	Cumulative Percent
05	2	3.9	2	3.9
06	3	5.9	5	9.8
07	17	33.3	22	43.1
08	7	13.7	29	56.9
09	14	27.5	43	84.3
10	8	15.7	51	100.0

Q58	Frequency	Percent	Cumulative Frequency	Cumulative Percent
BCKDCK	1	2.0	1	2.0
CLSCLL	1	2.0	2	3.9
DELTIME	1	2.0	3	5.9
DRIFT	1	2.0	4	7.8
JUDGDIST	1	2.0	5	9.8
N/A	23	45.1	28	54.9
NO	1	2.0	29	56.9
NONE	20	39.2	49	96.1
OTHDR	1	2.0	50	98.0
YES+	1	2.0	51	100.0

Q59	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	12	23.5	12	23.5
01	15	29.4	27	52.9
02	9	17.6	36	70.6
03	6	11.8	42	82.4
04	5	9.8	47	92.2
05	2	3.9	49	96.1
10	1	2.0	50	98.0
N/A	1	2.0	51	100.0

Q60	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	13	25.5	13	25.5
01	14	27.5	27	52.9
02	7	13.7	34	66.7
03	7	13.7	41	80.4
04	7	13.7	48	94.1
07	1	2.0	49	96.1
08	2	3.9	51	100.0

FREQUENCY TABLES

Q61	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	14	27.5	14	27.5
01	15	29.4	29	56.9
02	8	15.7	37	72.5
03	2	3.9	39	76.5
04	7	13.7	46	90.2
07	1	2.0	47	92.2
10	4	7.8	51	100.0

Q62	Frequency	Percent	Cumulative Frequency	Cumulative Percent
01	1	2.0	1	2.0
04	2	3.9	3	5.9
05	3	5.9	6	11.8
06	14	27.5	20	39.2
07	2	3.9	22	43.1
08	5	9.8	27	52.9
09	19	37.3	46	90.2
10	5	9.8	51	100.0

Q63	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	1	2.0	1	2.0
01	4	7.8	5	9.8
02	3	5.9	8	15.7
03	8	15.7	16	31.4
04	21	41.2	37	72.5
05	3	5.9	40	78.4
06	2	3.9	42	82.4
07	3	5.9	45	88.2
08	1	2.0	46	90.2
09	1	2.0	47	92.2
10	2	3.9	49	96.1
N/A	2	3.9	51	100.0

Q64	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	1	2.0	1	2.0
01	3	5.9	4	7.8
02	5	9.8	9	17.6
03	6	11.8	15	29.4
04	14	27.5	29	56.9
05	3	5.9	32	62.7
06	3	5.9	35	68.6
07	3	5.9	38	74.5
08	4	7.8	42	82.4

FREQUENCY TABLES

Q64	Frequency	Percent	Cumulative Frequency	Cumulative Percent
09	5	9.8	47	92.2
10	4	7.8	51	100.0

Q65	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	9	17.6	9	17.6
01	15	29.4	24	47.1
02	9	17.6	33	64.7
03	9	17.6	42	82.4
04	4	7.8	46	90.2
05	2	3.9	48	94.1
06	1	2.0	49	96.1
07	1	2.0	50	98.0
09	1	2.0	51	100.0

Q66	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	2	3.9	2	3.9
01	5	9.8	7	13.7
02	5	9.8	12	23.5
03	4	7.8	16	31.4
04	19	37.3	35	68.6
05	2	3.9	37	72.5
06	6	11.8	43	84.3
07	1	2.0	44	86.3
08	3	5.9	47	92.2
09	3	5.9	50	98.0
10	1	2.0	51	100.0

Q67	Frequency	Percent	Cumulative Frequency	Cumulative Percent
02	1	2.0	1	2.0
03	3	5.9	4	7.8
04	1	2.0	5	9.8
05	2	3.9	7	13.7
06	5	9.8	12	23.5
07	6	11.8	18	35.3
08	7	13.7	25	49.0
09	19	37.3	44	86.3
10	7	13.7	51	100.0

FREQUENCY TABLES

Q68	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	1	2.0	1	2.0
01	11	21.6	12	23.5
02	7	13.7	19	37.3
03	6	11.8	25	49.0
04	10	19.6	35	68.6
05	3	5.9	38	74.5
07	4	7.8	42	82.4
08	6	11.8	48	94.1
09	2	3.9	50	98.0
10	1	2.0	51	100.0

Q69	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	2	3.9	2	3.9
01	2	3.9	4	7.8
02	4	7.8	8	15.7
03	8	15.7	16	31.4
04	17	33.3	33	64.7
05	4	7.8	37	72.5
06	2	3.9	39	76.5
07	3	5.9	42	82.4
08	1	2.0	43	84.3
09	5	9.8	48	94.1
10	3	5.9	51	100.0

Q70	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	7	13.7	7	13.7
01	14	27.5	21	41.2
02	9	17.6	30	58.8
03	9	17.6	39	76.5
04	10	19.6	49	96.1
05	1	2.0	50	98.0
09	1	2.0	51	100.0

Q71	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	1	2.0	1	2.0
01	7	13.7	8	15.7
02	5	9.8	13	25.5
03	7	13.7	20	39.2
04	16	31.4	36	70.6
05	2	3.9	38	74.5
06	4	7.8	42	82.4
07	2	3.9	44	86.3

FREQUENCY TABLES

Q71	Frequency	Percent	Cumulative Frequency	Cumulative Percent
08	5	9.8	49	96.1
09	1	2.0	50	98.0
10	1	2.0	51	100.0

Q72	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	3	5.9	3	5.9
01	9	17.6	12	23.5
02	5	9.8	17	33.3
03	15	29.4	32	62.7
04	7	13.7	39	76.5
05	2	3.9	41	80.4
06	3	5.9	44	86.3
07	3	5.9	47	92.2
08	1	2.0	48	94.1
09	2	3.9	50	98.0
N/A	1	2.0	51	100.0

Q73	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	6	11.8	6	11.8
01	9	17.6	15	29.4
02	7	13.7	22	43.1
03	8	15.7	30	58.8
04	13	25.5	43	84.3
05	1	2.0	44	86.3
06	4	7.8	48	94.1
07	2	3.9	50	98.0
08	1	2.0	51	100.0

Q74	Frequency	Percent	Cumulative Frequency	Cumulative Percent
01	9	17.6	9	17.6
02	11	21.6	20	39.2
03	11	21.6	31	60.8
04	15	29.4	46	90.2
05	2	3.9	48	94.1
06	1	2.0	49	96.1
07	1	2.0	50	98.0
08	1	2.0	51	100.0

FREQUENCY TABLES

Q76	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	34	66.7	34	66.7
01	8	15.7	42	82.4
02	3	5.9	45	88.2
04	1	2.0	46	90.2
05	2	3.9	48	94.1
06	1	2.0	49	96.1
07	1	2.0	50	98.0
08	1	2.0	51	100.0

Q77	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	27	52.9	27	52.9
01	6	11.8	33	64.7
02	6	11.8	39	76.5
03	2	3.9	41	80.4
04	6	11.8	47	92.2
06	2	3.9	49	96.1
07	1	2.0	50	98.0
08	1	2.0	51	100.0

Q78	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	21	41.2	21	41.2
01	2	3.9	23	45.1
02	3	5.9	26	51.0
03	4	7.8	30	58.8
04	12	23.5	42	82.4
06	3	5.9	45	88.2
07	3	5.9	48	94.1
08	2	3.9	50	98.0
4L	1	2.0	51	100.0

Q79	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	38	74.5	38	74.5
01	5	9.8	43	84.3
02	1	2.0	44	86.3
03	3	5.9	47	92.2
04	2	3.9	49	96.1
07	1	2.0	50	98.0
10	1	2.0	51	100.0

FREQUENCY TABLES

Q80	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	39	76.5	39	76.5
01	6	11.8	45	88.2
02	2	3.9	47	92.2
03	2	3.9	49	96.1
04	1	2.0	50	98.0
08	1	2.0	51	100.0

Q81	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	49	96.1	49	96.1
01	1	2.0	50	98.0
03	1	2.0	51	100.0

Q82M	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	36	73.5	36	73.5
01	12	24.5	48	98.0
X	1	2.0	49	100.0

Frequency Missing = 2

Q82A	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	35	71.4	35	71.4
01	13	26.5	48	98.0
X	1	2.0	49	100.0

Frequency Missing = 2

Q82E	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	32	65.3	32	65.3
01	16	32.7	48	98.0
X	1	2.0	49	100.0

Frequency Missing = 2

FREQUENCY TABLES

Q82N	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	34	69.4	34	69.4
01	14	28.6	48	98.0
X	1	2.0	49	100.0

Frequency Missing = 2

Q82NE	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	30	61.2	30	61.2
01	18	36.7	48	98.0
X	1	2.0	49	100.0

Frequency Missing = 2

Q83MCT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	98.0	50	98.0
X	1	2.0	51	100.0

Q83MGC	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	98.0	50	98.0
01	1	2.0	51	100.0

Q83MT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	98.0	50	98.0
01	1	2.0	51	100.0

Q83MTO	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	98.0	50	98.0
01	1	2.0	51	100.0

FREQUENCY TABLES

Q83MLB	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	38	74.5	38	74.5
01	13	25.5	51	100.0

Q83MOT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	46	90.2	46	90.2
01	1	2.0	47	92.2
CHICRE	1	2.0	48	94.1
CRDISC	1	2.0	49	96.1
HRDISC	1	2.0	50	98.0
NKSHLD	1	2.0	51	100.0

Q83SCT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	49	98.0	49	98.0
01	1	2.0	50	100.0

Frequency Missing = 1

Q83SG	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	51	100.0	51	100.0

Q83ST	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	51	100.0	51	100.0

Q83STO	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	49	100.0	49	100.0

Frequency Missing = 2

FREQUENCY TABLES

Q83SLB	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	98.0	50	98.0
01	1	2.0	51	100.0

Q83SOT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	49	96.1	49	96.1
01	1	2.0	50	98.0
CRDISC	1	2.0	51	100.0

Q84	Frequency	Percent	Cumulative Frequency	Cumulative Percent
BKPROB	1	2.2	1	2.2
CTLH	1	2.2	2	4.3
DNTLPN	1	2.2	3	6.5
LBCALF	1	2.2	4	8.7
LBHIP	1	2.2	5	10.9
N/A	30	65.2	35	76.1
NECKPN	1	2.2	36	78.3
NONE	6	13.0	42	91.3
SEAT	2	4.3	44	95.7
SEATING	1	2.2	45	97.8
SHAVE	1	2.2	46	100.0

Frequency Missing = 5

Q850Y	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	11	21.6	11	21.6
01	40	78.4	51	100.0

Q85S	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	45	88.2	45	88.2
01	6	11.8	51	100.0

FREQUENCY TABLES

Q85B	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	40	78.4	40	78.4
01	11	21.6	51	100.0

Q85SU	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	51	100.0	51	100.0

Q850T	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	51	100.0	51	100.0

Q86	Frequency	Percent	Cumulative Frequency	Cumulative Percent
05	4	8.2	4	8.2
06	16	32.7	20	40.8
06.5	3	6.1	23	46.9
06.75	1	2.0	24	49.0
07	6	12.2	30	61.2
07.5	2	4.1	32	65.3
08	14	28.6	46	93.9
09	2	4.1	48	98.0
12	1	2.0	49	100.0

Frequency Missing = 2

Q87	Frequency	Percent	Cumulative Frequency	Cumulative Percent
06	11	21.6	11	21.6
06.5	2	3.9	13	25.5
07	5	9.8	18	35.3
07.5	3	5.9	21	41.2
08	14	27.5	35	68.6
08.5	3	5.9	38	74.5
09	7	13.7	45	88.2
09+	1	2.0	46	90.2
10	2	3.9	48	94.1
11	1	2.0	49	96.1
12	2	3.9	51	100.0

FREQUENCY TABLES

Q88	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	2	4.0	2	4.0
02	2	4.0	4	8.0
04.5	1	2.0	5	10.0
05.5	1	2.0	6	12.0
06	8	16.0	14	28.0
06.5	2	4.0	16	32.0
07	5	10.0	21	42.0
07.5	2	4.0	23	46.0
08	14	28.0	37	74.0
08.5	1	2.0	38	76.0
09	6	12.0	44	88.0
09+	1	2.0	45	90.0
10	1	2.0	46	92.0
18	1	2.0	47	94.0
N/A	2	4.0	49	98.0
X	1	2.0	50	100.0

Frequency Missing = 1

Q89AM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	31	60.8	31	60.8
01	1	2.0	32	62.7
02	2	3.9	34	66.7
03	1	2.0	35	68.6
04	1	2.0	36	70.6
09	1	2.0	37	72.5
10	1	2.0	38	74.5
12	3	5.9	41	80.4
12.5	1	2.0	42	82.4
N/A	2	3.9	44	86.3
VARIES	5	9.8	49	96.1
X	2	3.9	51	100.0

Q89PM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	10	20.0	10	20.0
01	1	2.0	11	22.0
02	1	2.0	12	24.0
04	1	2.0	13	26.0
06	1	2.0	14	28.0
07	1	2.0	15	30.0
08	1	2.0	16	32.0
09	5	10.0	21	42.0
10	8	16.0	29	58.0
10.5	1	2.0	30	60.0
10:30	2	4.0	32	64.0
11	4	8.0	36	72.0
11.5	1	2.0	37	74.0

FREQUENCY TABLES

Q89PM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
12	2	4.0	39	78.0
N/A	2	4.0	41	82.0
VARIABLES	5	10.0	46	92.0
X	4	8.0	50	100.0

Frequency Missing = 1

Q90AM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	41	80.4	41	80.4
01	3	5.9	44	86.3
01.5	1	2.0	45	88.2
11	1	2.0	46	90.2
12	2	3.9	48	94.1
N/A	1	2.0	49	96.1
VARIABLES	1	2.0	50	98.0
X	1	2.0	51	100.0

Q90PM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	8	15.7	8	15.7
010	1	2.0	9	17.6
05	1	2.0	10	19.6
09	3	5.9	13	25.5
10	15	29.4	28	54.9
10.5	2	3.9	30	58.8
11	14	27.5	44	86.3
11.5	1	2.0	45	88.2
12	1	2.0	46	90.2
N/A	1	2.0	47	92.2
VARIABLES	1	2.0	48	94.1
X	3	5.9	51	100.0

Q91AM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	3	6.0	3	6.0
01	3	6.0	6	12.0
02	1	2.0	7	14.0
04	3	6.0	10	20.0
04.5	1	2.0	11	22.0
05	6	12.0	17	34.0
05.5	1	2.0	18	36.0
06	8	16.0	26	52.0
06.5	4	8.0	30	60.0
07	6	12.0	36	72.0

FREQUENCY TABLES

Q91AM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
08	3	6.0	39	78.0
09	2	4.0	41	82.0
N/A	1	2.0	42	84.0
VAR	3	6.0	45	90.0
X	5	10.0	50	100.0

Frequency Missing = 1

Q91PM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	41	80.4	41	80.4
07	1	2.0	42	82.4
10	1	2.0	43	84.3
12	1	2.0	44	86.3
N/A	1	2.0	45	88.2
VAR	3	5.9	48	94.1
X	3	5.9	51	100.0

Q92AM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	1	2.0	1	2.0
05	2	4.0	3	6.0
05.5	1	2.0	4	8.0
06	11	22.0	15	30.0
06.5	2	4.0	17	34.0
07	7	14.0	24	48.0
07.5	1	2.0	25	50.0
08	10	20.0	35	70.0
08.5	2	4.0	37	74.0
09	6	12.0	43	86.0
11	1	2.0	44	88.0
N/A	1	2.0	45	90.0
VAR	1	2.0	46	92.0
X	4	8.0	50	100.0

Frequency Missing = 1

Q92PM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	45	88.2	45	88.2
10	1	2.0	46	90.2
15	1	2.0	47	92.2
N/A	1	2.0	48	94.1
VAR	1	2.0	49	96.1
X	2	3.9	51	100.0

FREQUENCY TABLES

Q93	Frequency	Percent	Cumulative Frequency	Cumulative Percent
001	1	2.0	1	2.0
002	2	3.9	3	5.9
002.5	1	2.0	4	7.8
003	1	2.0	5	9.8
004	1	2.0	6	11.8
005	6	11.8	12	23.5
006.5	1	2.0	13	25.5
007.5	1	2.0	14	27.5
008.5	1	2.0	15	29.4
010	9	17.6	24	47.1
012.5	1	2.0	25	49.0
015	9	17.6	34	66.7
020	4	7.8	38	74.5
025	1	2.0	39	76.5
030	5	9.8	44	86.3
037.5	1	2.0	45	88.2
040	1	2.0	46	90.2
045	1	2.0	47	92.2
120	1	2.0	48	94.1
N/A	1	2.0	49	96.1
X	2	3.9	51	100.0

Q94	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	8	15.7	8	15.7
001	1	2.0	9	17.6
01	17	33.3	26	51.0
01.5	4	7.8	30	58.8
02	13	25.5	43	84.3
02.5	1	2.0	44	86.3
03	3	5.9	47	92.2
15	1	2.0	48	94.1
N/A	1	2.0	49	96.1
NONE	1	2.0	50	98.0
X	1	2.0	51	100.0

Q95A	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	6	12.5	6	12.5
01	3	6.3	9	18.8
02	6	12.5	15	31.3
03	2	4.2	17	35.4
03.5	1	2.1	18	37.5
04	1	2.1	19	39.6
04.5	1	2.1	20	41.7
05	11	22.9	31	64.6
07.5	1	2.1	32	66.7
10	7	14.6	39	81.3
15	2	4.2	41	85.4

FREQUENCY TABLES

Q95A	Frequency	Percent	Cumulative Frequency	Cumulative Percent
20	1	2.1	42	87.5
30	1	2.1	43	89.6
AFEW	1	2.1	44	91.7
N/A	3	6.3	47	97.9
X	1	2.1	48	100.0

Frequency Missing = 3

Q95Y1N	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	42	87.5	42	87.5
01	2	4.2	44	91.7
N/A	2	4.2	46	95.8
X	2	4.2	48	100.0

Frequency Missing = 3

Q96SFA	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	44	88.0	44	88.0
01	5	10.0	49	98.0
N/A	1	2.0	50	100.0

Frequency Missing = 1

Q96MSP	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	12	23.5	12	23.5
01	37	72.5	49	96.1
N/A	1	2.0	50	98.0
X	1	2.0	51	100.0

Q96ESP	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	40	78.4	40	78.4
01	9	17.6	49	96.1
N/A	1	2.0	50	98.0
X	1	2.0	51	100.0

FREQUENCY TABLES

Q97TV	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	47	92.2	47	92.2
01	3	5.9	50	98.0
N/A	1	2.0	51	100.0

Q97R	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	98.0	50	98.0
N/A	1	2.0	51	100.0

Q97GU	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	48	94.1	48	94.1
01	2	3.9	50	98.0
N/A	1	2.0	51	100.0

Q97BATH	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	14	28.6	14	28.6
01	34	69.4	48	98.0
N/A	1	2.0	49	100.0

Frequency Missing = 2

Q97GBS	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	34	66.7	34	66.7
01	16	31.4	50	98.0
N/A	1	2.0	51	100.0

Q97EAT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	48	96.0	48	96.0
01	1	2.0	49	98.0
N/A	1	2.0	50	100.0

Frequency Missing = 1

FREQUENCY TABLES

Q97WRK	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	49	96.1	49	96.1
01	1	2.0	50	98.0
N/A	1	2.0	51	100.0

Q970TH	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	49	96.1	49	96.1
01	1	2.0	50	98.0
N/A	1	2.0	51	100.0

Q98	Frequency	Percent	Cumulative Frequency	Cumulative Percent
000	4	7.8	4	7.8
000.5	1	2.0	5	9.8
001	1	2.0	6	11.8
001.5	1	2.0	7	13.7
002	2	3.9	9	17.6
002.5	1	2.0	10	19.6
004	1	2.0	11	21.6
004.5	1	2.0	12	23.5
005	11	21.6	23	45.1
006	1	2.0	24	47.1
007.5	2	3.9	26	51.0
010	12	23.5	38	74.5
015	6	11.8	44	86.3
017.5	1	2.0	45	88.2
025	1	2.0	46	90.2
030	2	3.9	48	94.1
120	1	2.0	49	96.1
N/A	1	2.0	50	98.0
X	1	2.0	51	100.0

Q99	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	10	19.6	10	19.6
02	2	3.9	12	23.5
04	5	9.8	17	33.3
06	1	2.0	18	35.3
08	2	3.9	20	39.2
09	6	11.8	26	51.0
10	25	49.0	51	100.0

FREQUENCY TABLES

Q100	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	39	76.5	39	76.5
01	5	9.8	44	86.3
02	3	5.9	47	92.2
04	3	5.9	50	98.0
05	1	2.0	51	100.0

Q101	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	40	78.4	40	78.4
01	5	9.8	45	88.2
02	3	5.9	48	94.1
05	1	2.0	49	96.1
08	2	3.9	51	100.0

Q102	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	7	13.7	7	13.7
05	2	3.9	9	17.6
06	2	3.9	11	21.6
07	2	3.9	13	25.5
09	5	9.8	18	35.3
10	33	64.7	51	100.0

Q103	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	3	5.9	3	5.9
01	1	2.0	4	7.8
03	1	2.0	5	9.8
04	12	23.5	17	33.3
05	8	15.7	25	49.0
06	5	9.8	30	58.8
07	5	9.8	35	68.6
08	5	9.8	40	78.4
09	8	15.7	48	94.1
10	2	3.9	50	98.0
N/A	1	2.0	51	100.0

FREQUENCY TABLES

Q104	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	12	23.5	12	23.5
01	8	15.7	20	39.2
02	2	3.9	22	43.1
03	3	5.9	25	49.0
04	9	17.6	34	66.7
05	4	7.8	38	74.5
06	3	5.9	41	80.4
08	5	9.8	46	90.2
09	2	3.9	48	94.1
10	3	5.9	51	100.0

Q105	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	12	23.5	12	23.5
01	5	9.8	17	33.3
02	6	11.8	23	45.1
03	3	5.9	26	51.0
04	11	21.6	37	72.5
05	3	5.9	40	78.4
06	5	9.8	45	88.2
08	2	3.9	47	92.2
09	2	3.9	49	96.1
10	2	3.9	51	100.0

Q106	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	7	13.7	7	13.7
01	6	11.8	13	25.5
02	10	19.6	23	45.1
03	4	7.8	27	52.9
04	17	33.3	44	86.3
06	1	2.0	45	88.2
07	3	5.9	48	94.1
08	1	2.0	49	96.1
10	1	2.0	50	98.0
N/A	1	2.0	51	100.0

Q107	Frequency	Percent	Cumulative Frequency	Cumulative Percent
01	5	9.8	5	9.8
02	6	11.8	11	21.6
03	8	15.7	19	37.3
04	27	52.9	46	90.2
05	2	3.9	48	94.1
06	1	2.0	49	96.1

FREQUENCY TABLES

Q107	Frequency	Percent	Cumulative Frequency	Cumulative Percent
07	1	2.0	50	98.0
09	1	2.0	51	100.0

Q108	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	4	7.8	4	7.8
01	4	7.8	8	15.7
02	3	5.9	11	21.6
03	6	11.8	17	33.3
04	6	11.8	23	45.1
05	7	13.7	30	58.8
06	7	13.7	37	72.5
07	5	9.8	42	82.4
08	2	3.9	44	86.3
09	4	7.8	48	94.1
10	3	5.9	51	100.0

Q109	Frequency	Percent	Cumulative Frequency	Cumulative Percent
03	1	2.0	1	2.0
04	4	7.8	5	9.8
05	5	9.8	10	19.6
06	9	17.6	19	37.3
07	6	11.8	25	49.0
08	10	19.6	35	68.6
09	13	25.5	48	94.1
10	3	5.9	51	100.0

Q110	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	1	2.0	1	2.0
01	9	17.6	10	19.6
02	12	23.5	22	43.1
03	11	21.6	33	64.7
04	15	29.4	48	94.1
05	2	3.9	50	98.0
08	1	2.0	51	100.0

FREQUENCY TABLES

Q111	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	45	88.2	45	88.2
01	3	5.9	48	94.1
04	2	3.9	50	98.0
05	1	2.0	51	100.0

Q112	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	98.0	50	98.0
03	1	2.0	51	100.0

Q113C0	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	11	21.6	11	21.6
01	8	15.7	19	37.3
01.5	1	2.0	20	39.2
02	8	15.7	28	54.9
02.5	1	2.0	29	56.9
03	5	9.8	34	66.7
04	1	2.0	35	68.6
05	2	3.9	37	72.5
05.5	1	2.0	38	74.5
06	3	5.9	41	80.4
08	1	2.0	42	82.4
1.5QTS	1	2.0	43	84.3
10	1	2.0	44	86.3
12320Z	1	2.0	45	88.2
ALLDAY	1	2.0	46	90.2
N/A	1	2.0	47	92.2
SEVERAL	1	2.0	48	94.1
X	1	2.0	49	96.1
XALOT	2	3.9	51	100.0

Q113TE	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	40	78.4	40	78.4
01	4	7.8	44	86.3
02	4	7.8	48	94.1
02.5	1	2.0	49	96.1
1QT	1	2.0	50	98.0
N/A	1	2.0	51	100.0

FREQUENCY TABLES

Q113C	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	41	80.4	41	80.4
01	5	9.8	46	90.2
01.5	1	2.0	47	92.2
02	2	3.9	49	96.1
N/A	1	2.0	50	98.0
XALOT	1	2.0	51	100.0

Q113NI	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	28	54.9	28	54.9
02	1	2.0	29	56.9
02.5	1	2.0	30	58.8
04	1	2.0	31	60.8
10	2	3.9	33	64.7
15	3	5.9	36	70.6
20	8	15.7	44	86.3
30	1	2.0	45	88.2
40	2	3.9	47	92.2
52	1	2.0	48	94.1
N/A	1	2.0	49	96.1
XALOT	2	3.9	51	100.0

Q113AL	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	49	96.1	49	96.1
N/A	2	3.9	51	100.0

Q113LA	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	24	47.1	24	47.1
01	5	9.8	29	56.9
01.5	3	5.9	32	62.7
02	4	7.8	36	70.6
02.5	2	3.9	38	74.5
03	4	7.8	42	82.4
04	2	3.9	44	86.3
05	1	2.0	45	88.2
06	2	3.9	47	92.2
N/A	1	2.0	48	94.1
SELDOM	1	2.0	49	96.1
X	1	2.0	50	98.0
XALOT	1	2.0	51	100.0

FREQUENCY TABLES

Q113D	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	45	88.2	45	88.2
00.5	1	2.0	46	90.2
01	3	5.9	49	96.1
03	1	2.0	50	98.0
N/A	1	2.0	51	100.0

Q113PR	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	41	80.4	41	80.4
01	5	9.8	46	90.2
02	2	3.9	48	94.1
03	1	2.0	49	96.1
05	1	2.0	50	98.0
N/A	1	2.0	51	100.0

Q114	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	2	4.0	2	4.0
00.25	6	12.0	8	16.0
00.375	1	2.0	9	18.0
00.5	16	32.0	25	50.0
01	16	32.0	41	82.0
01.5	1	2.0	42	84.0
02	5	10.0	47	94.0
08	1	2.0	48	96.0
N/A	1	2.0	49	98.0
TILNAP	1	2.0	50	100.0

Frequency Missing = 1

Q117	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	23	45.1	23	45.1
01	14	27.5	37	72.5
02	4	7.8	41	80.4
03	4	7.8	45	88.2
04	5	9.8	50	98.0
05	1	2.0	51	100.0

FREQUENCY TABLES

Q118	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	11	21.6	11	21.6
01	11	21.6	22	43.1
02	8	15.7	30	58.8
03	6	11.8	36	70.6
04	12	23.5	48	94.1
06	1	2.0	49	96.1
07	1	2.0	50	98.0
08	1	2.0	51	100.0

Q119	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	16	31.4	16	31.4
01	21	41.2	37	72.5
02	6	11.8	43	84.3
03	2	3.9	45	88.2
04	5	9.8	50	98.0
06	1	2.0	51	100.0

Q120	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	8	15.7	8	15.7
01	14	27.5	22	43.1
02	9	17.6	31	60.8
03	4	7.8	35	68.6
04	11	21.6	46	90.2
05	2	3.9	48	94.1
06	2	3.9	50	98.0
08	1	2.0	51	100.0

Q121	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	19	37.3	19	37.3
01	11	21.6	30	58.8
02	7	13.7	37	72.5
03	7	13.7	44	86.3
04	5	9.8	49	96.1
06	1	2.0	50	98.0
09	1	2.0	51	100.0

FREQUENCY TABLES

Q122	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	18	35.3	18	35.3
01	20	39.2	38	74.5
02	4	7.8	42	82.4
03	2	3.9	44	86.3
04	4	7.8	48	94.1
05	1	2.0	49	96.1
07	1	2.0	50	98.0
N/A	1	2.0	51	100.0

Q123	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	17	33.3	17	33.3
01	14	27.5	31	60.8
02	11	21.6	42	82.4
03	3	5.9	45	88.2
04	5	9.8	50	98.0
05	1	2.0	51	100.0

Q124	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	3	5.9	3	5.9
01	13	25.5	16	31.4
02	7	13.7	23	45.1
03	3	5.9	26	51.0
04	17	33.3	43	84.3
05	1	2.0	44	86.3
06	1	2.0	45	88.2
08	1	2.0	46	90.2
09	3	5.9	49	96.1
10	2	3.9	51	100.0

Q125	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	3	5.9	3	5.9
01	16	31.4	19	37.3
02	7	13.7	26	51.0
03	4	7.8	30	58.8
04	16	31.4	46	90.2
05	1	2.0	47	92.2
06	1	2.0	48	94.1
08	1	2.0	49	96.1
09	2	3.9	51	100.0

FREQUENCY TABLES

Q126	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	35	68.6	35	68.6
01	6	11.8	41	80.4
02	5	9.8	46	90.2
03	2	3.9	48	94.1
04	1	2.0	49	96.1
10	1	2.0	50	98.0
N/A	1	2.0	51	100.0

Q127A	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	45	88.2	45	88.2
01	3	5.9	48	94.1
03	1	2.0	49	96.1
05	1	2.0	50	98.0
10	1	2.0	51	100.0

Q127B	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	49	96.1	49	96.1
09	1	2.0	50	98.0
EARPLG	1	2.0	51	100.0

Q128	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	8	15.7	8	15.7
01	5	9.8	13	25.5
02	1	2.0	14	27.5
03	4	7.8	18	35.3
04	6	11.8	24	47.1
05	5	9.8	29	56.9
06	2	3.9	31	60.8
07	1	2.0	32	62.7
08	3	5.9	35	68.6
09	4	7.8	39	76.5
10	12	23.5	51	100.0

FREQUENCY TABLES

Q129	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	3	5.9	3	5.9
01	8	15.7	11	21.6
02	5	9.8	16	31.4
03	4	7.8	20	39.2
04	14	27.5	34	66.7
05	5	9.8	39	76.5
06	2	3.9	41	80.4
07	2	3.9	43	84.3
08	2	3.9	45	88.2
09	5	9.8	50	98.0
10	1	2.0	51	100.0

Q130C	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	6	11.8	6	11.8
01	45	88.2	51	100.0

Q130S	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	46	90.2	46	90.2
01	5	9.8	51	100.0

Q130EM	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	49	98.0	49	98.0
01	1	2.0	50	100.0

Frequency Missing = 1

Q130BL	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	98.0	50	98.0
01	1	2.0	51	100.0

FREQUENCY TABLES

Q130B	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	47	92.2	47	92.2
01	4	7.8	51	100.0

Q130SB	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	100.0	50	100.0

Frequency Missing = 1

Q1300H	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	98.0	50	98.0
1PILOW	1	2.0	51	100.0

Q131W	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	100.0	50	100.0

Frequency Missing = 1

Q131N	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	43	86.0	43	86.0
01	7	14.0	50	100.0

Frequency Missing = 1

Q131L	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	50	100.0	50	100.0

Frequency Missing = 1

FREQUENCY TABLES

Q131S	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	45	91.8	45	91.8
01	4	8.2	49	100.0

Frequency Missing = 2

Q1310W	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	7	14.0	7	14.0
01	42	84.0	49	98.0
12	1	2.0	50	100.0

Frequency Missing = 1

Q1310L	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	8	16.0	8	16.0
01	42	84.0	50	100.0

Frequency Missing = 1

Q132H	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	45	90.0	45	90.0
01	5	10.0	50	100.0

Frequency Missing = 1

Q132S	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	47	94.0	47	94.0
01	3	6.0	50	100.0

Frequency Missing = 1

FREQUENCY TABLES

Q1320K	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	8	16.0	8	16.0
01	42	84.0	50	100.0

Frequency Missing = 1

Q133TH	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	49	98.0	49	98.0
01	1	2.0	50	100.0

Frequency Missing = 1

Q133T	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	42	84.0	42	84.0
01	8	16.0	50	100.0

Frequency Missing = 1

Q1330K	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	9	18.0	9	18.0
01	41	82.0	50	100.0

Frequency Missing = 1

Q136	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	39	76.5	39	76.5
01	7	13.7	46	90.2
02	4	7.8	50	98.0
03	1	2.0	51	100.0

FREQUENCY TABLES

Q137	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	43	84.3	43	84.3
01	4	7.8	47	92.2
02	3	5.9	50	98.0
04	1	2.0	51	100.0

Q138	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	41	80.4	41	80.4
01	4	7.8	45	88.2
02	3	5.9	48	94.1
04	3	5.9	51	100.0

Q139	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	35	68.6	35	68.6
01	8	15.7	43	84.3
02	2	3.9	45	88.2
04	5	9.8	50	98.0
08	1	2.0	51	100.0

Q140	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	7	13.7	7	13.7
01	8	15.7	15	29.4
02	4	7.8	19	37.3
03	4	7.8	23	45.1
04	9	17.6	32	62.7
05	2	3.9	34	66.7
06	2	3.9	36	70.6
07	5	9.8	41	80.4
08	1	2.0	42	82.4
09	4	7.8	46	90.2
10	4	7.8	50	98.0
?	1	2.0	51	100.0

FREQUENCY TABLES

Q141	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	18	35.3	18	35.3
01	5	9.8	23	45.1
02	5	9.8	28	54.9
03	3	5.9	31	60.8
04	9	17.6	40	78.4
05	1	2.0	41	80.4
06	1	2.0	42	82.4
07	4	7.8	46	90.2
08	1	2.0	47	92.2
10	3	5.9	50	98.0
?	1	2.0	51	100.0

Q142	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	44	86.3	44	86.3
01	4	7.8	48	94.1
02	2	3.9	50	98.0
04	1	2.0	51	100.0

Q143	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	27	52.9	27	52.9
01	12	23.5	39	76.5
02	7	13.7	46	90.2
03	2	3.9	48	94.1
04	3	5.9	51	100.0

Q144	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	35	68.6	35	68.6
01	8	15.7	43	84.3
02	1	2.0	44	86.3
03	2	3.9	46	90.2
04	1	2.0	47	92.2
06	2	3.9	49	96.1
08	1	2.0	50	98.0
10	1	2.0	51	100.0

FREQUENCY TABLES

Q145	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	45	88.2	45	88.2
01	3	5.9	48	94.1
02	1	2.0	49	96.1
03	1	2.0	50	98.0
07	1	2.0	51	100.0

Q146	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	49	98.0	49	98.0
01	1	2.0	50	100.0

Frequency Missing = 1

Q147	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	47	92.2	47	92.2
01	2	3.9	49	96.1
02	1	2.0	50	98.0
06	1	2.0	51	100.0

Q148	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	47	92.2	47	92.2
01	1	2.0	48	94.1
02	1	2.0	49	96.1
04	1	2.0	50	98.0
06	1	2.0	51	100.0

Q149	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	26	51.0	26	51.0
01	3	5.9	29	56.9
02	2	3.9	31	60.8
03	8	15.7	39	76.5
04	8	15.7	47	92.2
05	3	5.9	50	98.0
10	1	2.0	51	100.0

FREQUENCY TABLES

Q150	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	22	43.1	22	43.1
01	14	27.5	36	70.6
02	6	11.8	42	82.4
03	5	9.8	47	92.2
04	1	2.0	48	94.1
05	2	3.9	50	98.0
06	1	2.0	51	100.0

Q151	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	34	66.7	34	66.7
01	5	9.8	39	76.5
02	5	9.8	44	86.3
03	3	5.9	47	92.2
04	1	2.0	48	94.1
05	1	2.0	49	96.1
06	1	2.0	50	98.0
N/A	1	2.0	51	100.0

Q152	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	28	56.0	28	56.0
01	8	16.0	36	72.0
02	7	14.0	43	86.0
03	2	4.0	45	90.0
04	3	6.0	48	96.0
05	1	2.0	49	98.0
08	1	2.0	50	100.0

Frequency Missing = 1

Q153	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	29	58.0	29	58.0
01	11	22.0	40	80.0
02	4	8.0	44	88.0
03	1	2.0	45	90.0
04	4	8.0	49	98.0
06	1	2.0	50	100.0

Frequency Missing = 1

FREQUENCY TABLES

Q154	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	21	41.2	21	41.2
01	9	17.6	30	58.8
02	7	13.7	37	72.5
03	3	5.9	40	78.4
04	7	13.7	47	92.2
05	2	3.9	49	96.1
06	1	2.0	50	98.0
10	1	2.0	51	100.0

Q155	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	15	29.4	15	29.4
01	12	23.5	27	52.9
02	12	23.5	39	76.5
03	4	7.8	43	84.3
04	5	9.8	48	94.1
06	1	2.0	49	96.1
07	1	2.0	50	98.0
08	1	2.0	51	100.0

Q156	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	24	47.1	24	47.1
01	7	13.7	31	60.8
02	2	3.9	33	64.7
03	3	5.9	36	70.6
04	6	11.8	42	82.4
05	1	2.0	43	84.3
06	2	3.9	45	88.2
07	1	2.0	46	90.2
08	4	7.8	50	98.0
09	1	2.0	51	100.0

Q157	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	22	43.1	22	43.1
01	5	9.8	27	52.9
02	9	17.6	36	70.6
03	5	9.8	41	80.4
04	6	11.8	47	92.2
06	1	2.0	48	94.1
08	1	2.0	49	96.1
09	2	3.9	51	100.0

FREQUENCY TABLES

Q158	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	17	33.3	17	33.3
01	4	7.8	21	41.2
02	9	17.6	30	58.8
03	3	5.9	33	64.7
04	11	21.6	44	86.3
05	1	2.0	45	88.2
06	3	5.9	48	94.1
08	1	2.0	49	96.1
09	2	3.9	51	100.0

Q159	Frequency	Percent	Cumulative Frequency	Cumulative Percent
00	2	4.5	2	4.5
HATEIT	1	2.3	3	6.8
LEGCR	1	2.3	4	9.1
N/A	31	70.5	35	79.5
NONE	5	11.4	40	90.9
PAYHRS	1	2.3	41	93.2
PRSNAL	1	2.3	42	95.5
SCHDUL	1	2.3	43	97.7
TSCHDL	1	2.3	44	100.0

Frequency Missing = 7

APPENDIX C

VERBATIM RESPONSES TO OPEN ENDED QUESTIONS *FROM PILOT STUDY

APPENDIX C

Verbatim Responses to Open Ended Questions

*From pilot study

39. Is there anything else that we should know about that describes why you are or are not satisfied with your job?

8 - No/*1 - No

2 - None

* Nothing

Pay could be a little higher

Lack of education and or respect from other vehicles (non trucks) on the road

Attitude make all the difference

Pay

Our image with the public

Get home more

There is always room for more improvement on everyones part

Dispatch does a good job to have you home weekends and when needed at home

The treatment you receive from 99% of Office Personal and Supervisors is very satisfying

Trucking Ind. Non Union does not work on a pay regulation of people in other work forces, we get no over time, seldom holidays off, sick pay, none proper insurance for all the environments were in or ill people we come in contact with, and catch their illness or hot days unloading - 10 degree trailer load, irregular feedings, improper foods - (Ins. must assist us in these conditions) it does not.

I like my job, but not home at nights.

Getting home more than other com. that I worked for not sitting around truck stops with nothing to do.

There is a lot of stress pulling a gas tanker in the city; too much traffic.

*My problem as a driver is to much time spend at work even when the truck is not moving. Also not enough exercise, something corretable.

I'm dissatisfied with the amount of time away from home. I cannot maintain a social life or the desired amount of interaction with members of my immediate family. Regular contact with friends and relatives is something I miss a great deal.

If not working for present employer probely would not be driving a truck.

58. Was there an incident when your performance in driving was influenced because of being tired? Please describe in detail.

13 - No/*5 - No

3 - None

N/A

None that I recall

Unacceptable driving practices of other vehicles

Backing into a doc, takes more trys than normal

Pushing to make delivery on time

I got to close to the side of the road and the yellow lines on a two lane road and a car was coming the other way with his light on bright and I was all over the road. After he turned his lights down, my eyes were burning. After that I found an place to go to sleep a few miles down the road.

I came around the bend on the freeway and I couldn't see the cars stopped in time to avoid slidding to a stop. Close call!

While driving on narrow 2 lane with no shoulder drifted of road and was pulled into ditch

Could not judge distance properly came to close to car in front of me

*Before atitude adjustment as to what needed to be done, the only thing which really effected the preformance was staying at home to long-not leaving with enough time to get to the distination rested.

No, but sometimes when I'm real tired I get a little nervous, which causes me to drive a little slower.

75. Please describe any other information pertinent to your stress in relation to driving at work that you think we ought to know about.

No

2 - None

Stupid moves by other drivers

In reference to bad weather?- slick roads due to hard packed snow or ice

Getting unrealistic delivery times

Rainy weather

It happens when people just have to get around, then slam on there brake's in the space you allow for stopping.

Having to use the restroom & not having a place to stop!

Cars and trucks cut you off or pullout in front of you and you have to hit the brakes hard to slow down for the car or truck.

I think 4 wheelers need to be aware of how dangerous it is playing games with a semi. driving to close etc;

Driving in big citys like N,Y etc out east while in rush hour or trying to find company that I have not been to before. Low underpasses, tight roads.

This pertains to shippers & receivers making appointments without regard to drivers need for sleep, food, showers, fueling & rest time. Also, taking the shortest route - per dispatch mileage - often takes longer due to 2 lane roads, slow traffic, city zones & speed limits. Even by interstate, with heavy traffic, construction & other delaying factors (accidents) time becomes a factor of trying to recoup the loss of driving to make appointments. Something has to give & that usually means the drivers personal needs - as in showering, relaxing & eating a meal, time for exercise. Instead its fast food, hope to get a shower maybe tomorrow & push the time.

Scales - weigh stations - never know what can happen in them, alot of scales don't give enough warning before they come up.

Trying to find a safe place to sleep at nite. On major traffic lanes after 8:30 pm at nite a lot of rest areas & truck stops are filled to capacity

Icy road conditions. Because it is harder to maintain control of truck.

Gas tanker requires city driving. This type of driving stresses me.

*Trying to read street signs at night.

*I use a driving style that puts me through large cities at nite as often as possible as well as waiting until after rush hour to enter or leave a congested area. I don't tailgate or weave around in traffic and I almost always budget extra time on a trip so I don't end up running hard to make an appointment.

*If I stop to sleep, or let log book catch up will or run and be ontime. Worrying over personal problem is not good in any stition especaly driving.

*Family and the problems with the home - knowing everything is being handled to the best it can be.

84. Please describe any other information pertinent to your physical discomfort/injuries in relation to driving at work that you think we ought to know about.

5 - None/*1 - None

Neck pain

Lower back pain and legs, calf area of legs

Carpal tunnel left hand

Please do something about seats in the trucks they are uncomfortable for lower back lumbar mussels

I firmly believe that if you shower and shave in the evening that you feel better physically and mentally, therefore will rest better

Dental Pain. If you drop a pallet on body, or twist ankle or elbow

Pain in lower back and hip right side. Herianated disc lower back.

One issue not discussed - the comfort of the driver while driving - the seat of the truck. Driver sits in this 10 hrs a day & if it is an uncomfortable seat, it create fatigue faster, plus adds to the aches & pains or even can create problems

Back hurts a little if I drive to long without taking a break

Seats need to be at better angles for ease of driving

*Pain in knees

*I have experienced some muscle tightness and pain in my lower neck as well as some recurrence of my Ganglian cyst problem from years ago. Both of my wrists have developed a cyst that tends to cause some pain and restriction when I load/unload a hook/unhook trailers.

*Sometime hips, knees and neck get a little stiff, however, I find it helps to park at a truckstop, rest area, mall parking lot and walk.

115. How do you cope or adapt with your changing sleep patterns? Aside from drugs (including sleeping aids, nicotine, caffeine), how do you stay awake or fall asleep promptly?

Just got use to what I have to work with time wise

Don't

Not a Problem

2 - Just do it

Just do

Mind over matter

I just go to sleep

Listen to AM-FM radio, Talk on CB radio

Keep moving around

I have no problem

Just relax

Fresh air and walks

None

Do not know

Do the best I can, coffee to fresh up, no caffeine drinks to sleep

Coffee or coke

I just get use to it

Take short breaks

Mental attitude

Snacks to stay awake - read to fall asleep

Over the years I have trained myself to sleep when needed

Drive till you get tired

Habit

Good

Have learned to relax and sleep good. Normally try to be in bed by 10 or 10:30 PM. Try to arrange schedule so can do this by rising earlier in the morning.

I think the secret is if possible try to sleep the same hours each day; If you can't, then as close a possible.

Get up walk around - do things to wake me - to fall asleep - I turn my mind off

All I have to do is lay down and I sleep

* I sleep well

Talk on C.B. radio. Listen to books on tape. Listen to music.

Try to go to sleep at the same time every day and get up at the same time

Fall asleep lay down. Stay awake try getting out of truck

I cope well, I fall asleep by quieting my mind

Pop to stay awake, TV to fall asleep

*It just happens

*Well

Naturally

1. don't have any problem 2. I don't have any trouble either way.

I try to remain on the same sleep pattern on & off the job. I work with my body not against it.

My body has adapted. I have no trouble staying awake or going to sleep at once.

Soft music - to sleep. Talk shows on radio - stay awake or music

Walk around to wake up. Eat to get sleepy.

I pace myself so I do not have "peril" off fatigue

Eat junk food, drink hot water

Awake: walk around, listen to the radio or CB. Fall asleep: no cure

I just lay down or read a little

Grown used to various sleep times although is difficult at times

Listen to radio

*By going downstairs and closing the door and sleeping by myself at home in quiet, or by turning the radio off and C.B. off in the truck as to not be disturbed. To stay awake, I listen to the radio, roll the window down and change sitting positions.

*Too stay awake I chew tobacco more than normal. Too sleep I found drinking one cup of hot tea w/honey help me to relax or reading.

*You know in your mind what needs to be done. If you have a chance to sleep do it - sometimes it works sometime it doesn't.

*Read, listen to music, talk on CB until I get tired and fall asleep.

116. Please describe any other information pertinent to your sleep or wakefulness that you think we ought to know about.

4 - None

I think that if you plan your stops and sleep points before leaving on trip that you can rest

better knowing that you are on schedule

I fall asleep very well after reading for 15-30 minutes; I try to always shower also when I get up; revives you.

When at home I awake between 7:00 AM and 10 PM. On the road my hrs vary.

I always thought if I sat in the seat and went to sleep I might do it going down the road.

Don't eat junk food. Try to eat regularly. Try to walk ½ hr. everyday or at least every other day!

Our sleep habits vary to our situations, never the same each day or hour, lot of outside elements justify the moments.

Nothing wrong with my sleeping. Don't have any trouble staying awake.

When tired and can't stop have to eat a lot of candy to stay awake.

When I'm tired I sleep.

*I try not to worry about personal problem to sleep. I do not eat heavy before goin to sleep. To stay awake I think about bills, and drive, drive, drive, good music, talk radio, audio books, or even listening to my kids on cassette.

*I just work on the fact that driving a truck for a living has no pattern in which you can plan for so you adjust and make your mind & body do the same.

*I usually schedule my trips quite thoroughly and am getting ready to find a parking place and go to bed a good 2 hrs ahead of time.

134. What things would you change to improve your sleeping berth and surroundings?

4 - Nothing/*1 - Nothing

6 - None/*1 - None

2 - N/A

Bathroom

Get more shelves and storage

None right now

Better insulation

Bathroom and water

Make it higher and longer

None at this moment with the truck I drive now.

Would have electric blanket when weather cools off in fall and spring.

Be able to walk in

*More exercise, less worry about money

Satelite dish, thicker padding on mattress

It would be a little easier to stand up and put my trousers on; but I manage real well.

Walk in sleeper. More screened windows and vents.

More room inside sleeper.

Change position of air conditioning blowing out air, have berths with larger fresh air vents.

*Put more windows so light from outside can come in

Have a bigger place to put your thing that are out of the way

Make it larger - condo

*Better support mattress

A little bigger area better controls on temp, better mattress.

Install water bed

I have already fixed my sleeping berth to meet my needs such as an extra foam topping on top of mattress with mattress pad and then bedding.

Fans for air circulating while truck not running, that would draw fresh air from outside.

More comfort in the mattress.

The truck I drive now doesn't have climate control.

More room - better air circulation with vents open and truck shut off. Better or thicker mattress.

A thermostat to regulate temp. better.

135. Are there any other areas of concern that were not mentioned above that disturb your sleep? Please describe in detail.

8 - No/*1 - No

7 - None/*1 - None

N/A

None @ present

Weather

I like to stop at dusk at night so I can find good spot to park, prefferably not next to reefer unit and not far from restarant.

Thinking about my boyfriend.

Being awakened by prostitutes and/or the selling of drugs or illegal merchandise.

Air vents in berth could be larger better temp controls.

Hot hazards (prostitutes) banging on the door.

*There was no questions about a drivers personal life. Well work at any job personal is personal work is work but driving a truck, personal problems can be a big factor in sleep as well as driving safely. Although I realize the questions are about sleep.

*Wind rocking truck. Bad area of town waiting to deliver (a) when some jumps on you truck & shakes it, (b) also on how heavy of sleep you let yourself fall into.

159. Please describe anything else you think we should know about sleep, fatigue and professional truck driving.

5 - None

2 - N/A

Depends on person and how much sleep they require. Some need more. Some need less.

Having to stop driving when not tired because of 10 or 70 hrs. And not being able to sleep during the day and having to drive when fatigued to get to delev. on time.

When schedule is tight, even though you are tired and sleeping, it is not as restful as should be knowing you better not oversleep, the pressure of the load schedule, not getting showered is working on your mind.

If the pay was equal to hrs worked, drivers wouldn't half to work so hard and get fatigued.

I basically hate it. I'm only doing it for the money.

Question 152. I have cramps

APPENDIX D
PRELIMINARY QUESTIONS

APPENDIX D

Preliminary Questionnaire

Ten individuals provided responses to the preliminary (pilot) questionnaire. Based upon responses and comments to the pilot questionnaire, plus a panel review of the questionnaire, the final questionnaire was developed. Since several changes were made to the preliminary questionnaire (eg. Rating scales and revisions of questions) specific question responses from the pilot questionnaire and the final questionnaire do not have a direct correlation. However, it is believed that trends seen in the final questionnaire results are consistent with those of the preliminary questionnaire.

The following is a brief summary of some of the results from the preliminary questionnaire. Table DI presents the driver demographics from the preliminary questionnaire.

Table DI Driver Demographics
Pilot Study Data - 10 Respondents

	Number	Mean	Mode	Range
Age (years)		38.6	42	22-49
Weight (lbs)				
Male (n = 9)		212.8	-	170-300
Female (n = 1)		260.0	-	178-189
Height (inches)				
Male (n = 9)		71.3	70	69-76
Female (n = 1)		65	-	-
Marital Status (years)				
Single	3			
Married	6			
Divorced	1			
Widowed	0			
Education				
High School Diploma or More	10			
Degree	3			
Associate degree	2			

Responses from the preliminary questionnaire indicate six drivers drove refrigerated vans, two drove dry vans and two drove either a refrigerated van or dry van. None of the drivers drove their own truck.

Only one driver reported not being able to find a place to rest when tired. In a typical 7 day period 4 of the ten never slept at home. All ten reported sleeping in their sleeper berth when away from home (average of 5.8 days out of seven).

The drivers averaged 2970 miles per 7 day period and 62.5 hours of driving per 7 day period. Five drivers reported violating the daily hours of service regulation during the last 7 days. Five drivers (not same as above) reported violating the "70 hours in 8 day" rule in the last month.

The drivers were generally satisfied with their jobs and generally rated their performance when tired as rarely having a problem. Few physical disorders were identified, but with the shoulder being the most troublesome area (then only rarely or sometimes). One person reported having lower back pain. Eight of the 10 were coffee drinkers but only four were smokers or used nicotine. Sleep disturbance issues in sleeper berth were only modest, but lack of air temperature control was the item of most concern.

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