



## **EXTENDED WORKING HOURS: IMPACTS ON WORKERS**

*Personnel: safety*

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[www.forestresources.org/members/serpub/10-R-20.html](http://www.forestresources.org/members/serpub/10-R-20.html)

**INTRODUCTION:** Some logging business owners are trying to manage their equipment assets by increasing the scheduled machine hours. The intent is to maximize the total tons produced by a set of equipment. This practice is referred to as multi-shifting, double-shifting, or extended working hours. One area often overlooked is the impact that working non-traditional hours can have on workers.

In a study partially funded by the Wood Supply Research Institute, 22 logging business owners who had implemented shift work were interviewed. The most common working schedule incorporated two shifts per day. The average shift length was 10.5 hours for the daytime shift and 9.5 hours for the late shift. Researchers summarized data from these interviews and from a search of available literature and developed recommendations for those considering implementing some type of extended working hour schedule.

**GENERAL FEATURES:** During the interviews, it became apparent that employee turnover was a frequent issue when logging business owners first implemented extended working hour schedules. Long shifts can cause fatigue and mental burnout, and have also been tied to physical illnesses related to lack of physical body exercise while operating equipment. To help relieve impacts of long shifts, scheduled work breaks are recommended. Frequent short breaks in which employees dismount equipment can help to introduce movement into muscle groups that are not used when operating equipment. If working at night, dismounting equipment may become a safety issue, so exercises should be performed from a seated position.



*Fig. 1: Late shift logging.*



*Fig. 2: Additional equipment lights are common on extended shift operations.*

Working nights can disrupt normal body rhythms that are typically tied to a 24-hour cycle (circadian rhythm). Many of the logging business owners that stopped using extended working schedules were ending their late schedule after 1:00 a.m. The circadian rhythm could explain the failure of this working schedule, as oral temperatures are at their lowest between 3:00 and 5:00 AM. Commuting during the circadian low in the early morning hours may also put workers at a higher risk of vehicle accidents.

In addition to physiological impacts, there are social influences that can contribute to the problems of adjusting to a late shift schedule. Meal times are an example of such societal influences, and workers may associate non-work activities with evening meals. Research shows that employees working permanent late shift assignments have high levels of work-home conflicts. If permanent late shift schedules are

implemented, work-home conflicts may be reduced by offering a flexible schedule such that employees can trade shifts as needed to participate in family, or other, social activities.

Personality traits may be partially responsible for the high turnovers that logging business owners reported experiencing when they first implemented shift schedules. Existing research indicates that people with an introvert-type of personality may be better suited to working the late shift. In our interviews, we found that the late shift crew size was often smaller than the day shift crew. Introvert personality types may be a better match for working the late shift, due to reduced employee interaction of the smaller crew size and the isolation of working alone in a machine at night. During employee hiring interviews, logging business owners should try to understand the applicant's personality type when hiring to fill late shift vacancies.

**CONCLUSION:** Extended working hours can have physiological, psychological, and social impacts on employees. Some of these impacts can be minimized by careful consideration of shift lengths, shift rotation, flexibility in scheduling, and scheduled rest breaks. As a result of the interviews and literature search, the researchers developed following checklist regarding the impacts of shift work schedules on workers.

### **CHECKLIST FOR IMPLEMENTING EXTENDED WORKING HOURS**

Shift work can cause psychological, physiological, and social impacts on employees. Some of these impacts may result in higher employee turnover, decreased safety, or decreased work performance. Increased turnover not only leads to understaffed operations, but it can lead to lower production because new employees may need a training period. Decreased safety and decreased work performance can also impact logging costs. The following points are suggestions of topics to consider before implementing extended work schedules.

- Long shifts can lead to fatigue and mental burnout. They may be alleviated by two or more substantial rest breaks evenly spread throughout the shift. Performance levels may be maintained by scheduling rest breaks.
- Long shifts can lead to illness (weakened immune systems, sore neck muscles from bracing, increased blood sugar) due to lack of physical body exercise. Frequent, short breaks in which operators dismount equipment can introduce movement into muscle groups that aren't used when operating equipment. These short breaks may result in fewer work days missed due to illness.
- Many find it difficult to adjust to shift schedules that include working the hours between 3 AM and 5 AM. Workers who are "night owls" may be better suited for working the late shift.
- Fatigue may be associated with compromised safety. Communication devices may be needed to allow equipment operators to communicate with each other after dark.
- Safety meetings should be scheduled so they include workers from all shifts.
- Some workers find it difficult to work on the late shift because fewer workers are on site and darkness further isolates them. People with an introvert type of personality fare better on the night shift than those with an extrovert personality type.
- There may be social impacts of implementing extended work schedules. High levels of work-home conflict are reported by workers with permanent late shift assignments. Offering a rotating or flexible schedule can allow workers to participate in social activities.
- A faster rotation, such as rotating shifts weekly, may have more positive influences on the psychological impacts (job satisfaction, health, and well-being) of shift work.
- Shift workers often have sleep complaints (length of time it takes to fall asleep, or disrupted sleep). Fatigue, stress, daylight, health, and age also impact the quality of sleep. Workers should be encouraged to try different sleep schedules including sleeping for 8 hours either immediately after, or immediately before the late shift.

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**FRA STAFF COMMENT:** For additional safety recommendations related to night-shift logging, see FRA Loss Control Overview #43 at [www.loggingsafety.com](http://www.loggingsafety.com) or [www.forestresources.org/members/serpub/LCO-43.html](http://www.forestresources.org/members/serpub/LCO-43.html).

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