

## Fatigue and Oil-Handling Facilities Operations

Sleep is a basic human need. Fatigue is the reduced performance associated with the need for sleep. Fatigue and the need for sleep are too often viewed as weaknesses – they are not weaknesses. Our modern, 24-hour a-day, just-in-time, jet-lagged, technology-driven world promotes fatigue.

Accidents occur in all parts of our lives because of fatigue.

There are many wrong ideas about fatigue and the need for sleep, including:

- “I know how tired I am.” Wrong. Since fatigue impairs all mental functions, including perception, people often underestimate their levels of fatigue.
- “I’ve been awake this long before with no problem.” Wrong. The body’s natural sleep rhythms are complex and subject to a variety of factors. Do not assume that because you stayed awake for a long period without incident you can safely repeat the experience – it is possible you were just lucky.
- “If I drink coffee I’ll stay awake with no problem.” Wrong. Caffeine’s effect is temporary (3 to 4 hours), and those who drink caffeinated beverages regularly experience less of a stimulant effect over time. In addition, once the stimulant effects have worn off, you may experience a “rebound effect” and be even more fatigued. Stimulants such as caffeine can also reduce the quality of sleep you experience.

A number of fatigue-related effects have been identified:

“Lapses” (failures to respond, slow responses, and wrong responses), decreased performance consistency, slowed reactions, increased mental errors, decreased memory and recall, decreased alertness, and increased risk-taking.

The subtle nature of fatigue is that, since all mental functions are affected, the ability to recognize and compensate for the

### WHY IT MATTERS

Fatigue is a major cause of the accidents that occur in all parts of our lives including during difficult tasks like transferring oil. If an oil spill occurs as a result of fatigue, failure to respond appropriately, a slow response or a wrong response can greatly impact state waters.

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effects is decreased. There may be no warning before a fatigued person experiences a lapse or the onset of sleep. Signs and symptoms of fatigues, when they do appear, may include forgetfulness, poor decisions, inattention to important duties, poor communication, and fixation on a single task or decision.

Contact with other people, such as talking, can stimulate a fatigued person temporarily. This can mislead a supervisor into thinking the fatigued person is fit for work. It is important to be aware of the causes of fatigue to identify fatigued persons whose actions may reduce safety and performance.

Fatigue stems from different sources, but all relate to the need to sleep. Common fatigue-inducers include:

**Sleep disorders** – There are a number of sleep disorders, but the most common disorder (four to nine percent of the U.S. population) is sleep apnea. Apnea is when a person briefly stops breathing during sleep. This stoppage causes a person to wake up from a deep state of sleep so breathing can start again. Snoring may be a symptom of apnea. Persons who are overweight and snore may be at increased risk for apnea.

**Jet-lag** – When people cross time zones the body's internal clock is disturbed by the rapid change in daylight hours. This mismatch between the body's usual sleep time and the sleep time and daylight in the new time zone can reduce mental and physical function.

**Changes in work shifts** – As with jet-lag, changes in work hours disturb our body's normal cycle of waking and sleeping, and can reduce mental and physical function.

**Sleep deficit** – Not enough sleep can result in a "sleep debt" which can only be "repaid" by sleeping.

**Drug and alcohol effects** – Many drugs and alcohol have sleep-inducing effects on the body. Drugs and alcohol may also induce fatigue because they disturb normal sleep patterns, reducing the quality and quantity of sleep.

### **There are a number of ways to help prevent fatigue**

For individuals these include:

- Make quality sleep time a priority (don't let other activities intrude).
- Make your sleep space as restful as possible (for instance dark and quiet).
- Maintain your total sleep time by whatever means possible (seven to eight hours of sleep is typically needed to ensure adequate rest). If you cannot get your usual sleep all at once, try to make time for a nap. [Note: After sleep, ensure you leave adequate time to regain your alertness prior to undertaking your duties.]
- Avoid using sleep-disturbing and sleep-inducing drugs and alcohol.
- Maintain a record of your sleep time. If you are not getting adequate rest, bring it to your supervisor's attention.
- If you feel consistently fatigued and don't know why, see a doctor about it – you could have a sleep disorder.

**For managers and supervisors these include:**

- Make thoughtful and informed decisions about scheduling – understand how improper scheduling can induce fatigue.
- Research and consider alternative work schedules that ensure adequate rest by allowing for periods of uninterrupted sleep closer to the seven to eight hours required by most people.
- Make the availability of adequate rest periods for employees a priority.
- Consider sleep needs when making staffing decisions, avoiding short- and minimum-staffing.
- Use a team approach, where possible, to prevent the fatigue of a single person from reducing safety.
- Consider requiring at least two persons on duty at night.
- Provide enough time for employees to adjust their internal sleep clock before they are required to assume safety-dependent duties, for example when someone returns from an overseas vacation.

- Listen to and address employee concerns of inadequate rest, and use their feedback to constantly re-think staffing and scheduling decisions.

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