



PHMSA Fatigue Management

- US Department of Transportation
 - Pipeline and Hazardous Materials Safety Administration (PHMSA)
 - Ensure oil and gas are transported safely through the nation's pipeline network



- Control Room Management (CRM) for gas and hazardous liquid pipelines regulated under 49 CFR Parts 192 and 195, respectively.
 - PHMSA's pipeline safety regulations prescribe safety requirements for controllers, control rooms, and SCADA systems used to remotely monitor and control pipeline operations. The regulations address engineering and management solutions related to human factors to enhance the performance reliability of operator personnel that control pipeline operations



2016 PIPES Act

- Requires that operators implement methods to reduce the risks associated with fatigue (49 CFR 192.631 and 195.446).
 - Procedures to ensure that controllers are not assigned to shift duties while fatigued,
 - Understand Human Factors which could cause a reduction of mental alertness or decision-making ability,
 - Institute safe management practices to reduce fatigue-related risks.



Fatigue Management Requirements

- Establish shift lengths and schedule rotations that provide controllers off-duty time sufficient to achieve eight hours of continuous sleep;
- Educate controllers and supervisors in fatigue mitigation strategies and how off-duty activities contribute to fatigue;
- Train controllers and supervisors to recognize the effects of fatigue;
- Establish a maximum limit on controller hours-of-service,
 - Allows for an emergency deviation from the maximum limit if necessary for the safe operation of a pipeline facility.



Fatigue Management Practices

➤ Training

- Scheduled prior to being initially qualified to perform pipeline Controller duties and then at least once each calendar year at intervals not to exceed 15 months thereafter.
- Includes:
 - Recognition of symptoms and signs of fatigue,
 - How off-duty activities contribute to fatigue,
 - Employer-specific policies and procedures related to fatigue management,
 - Quantifying the potential contribution of fatigue to incidents and accidents.



Fatigue Management Practices

➤ Fatigue Mitigation – Shift Design

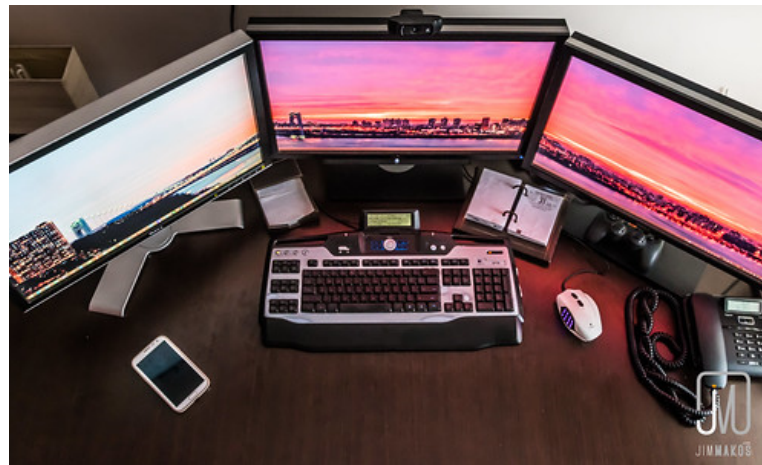
- Encourage workers to take regular breaks and allow some choice as to when they are taken.
- Limit consecutive workdays to a maximum of five to seven days and restrict long shifts, nights, and earliest to two to three consecutive shifts.
- Allow two nights of full sleep when switching from days to night shifts and vice versa.
- Build regular free weekends into the shift schedule.



Fatigue Management Practices

➤ Fatigue Mitigation – Work Environment

- Ensure temperature and lighting are appropriate and adjustable.
- Provide night workers with similar facilities (canteen, food storage, and preparation) and access to training opportunities to those available during daytime.
- Increase supervision during periods of low alertness.



Recordkeeping

- Shift lengths and shift rotation schedule.
 - Reviewed by supervisors and controllers at least annually.
- Documentation of compliance with limitations on hourly and consecutive days worked.
 - Controller hours worked – timecards,
 - Deviations from above,
 - Substitute/Temporary Operator hours worked.
- Education/Training documentation.
 - Method of training,
 - Including effectiveness of training evaluation.



Recordkeeping

- Incident Investigation Reports.
 - Including evaluation of fatigue on the incident root cause.
- Fatigue Observation Reports .
 - Reviewed regularly to monitor controllers for evidence of chronic fatigue.



Enforcement

➤ PHMSA Inspections for CRM:

- 2020 - 62

- 2021 - 60

➤ Results/Citations:

- 9% unsatisfactory - citations

- 21% of citations for training related items

- 12% of citations for fatigue management related items

- Most noted reason for citation is lack of training documentation



Questions

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