SPECIFIC TOPICS
Specific topic 2: Managing fatigue risks

Suggested approach for sites
The suggested approach for sites on this issue is to focus more on the system for controlling excessive or fatiguing working hours, rather than individual, one-off instances. Sites should be reminded that the legal duty is on employers to manage risks from fatigue, irrespective of any individual's willingness to work the extra hours. Sites will be aware of the topic but are unlikely to have in-house competence and, in many cases, management control of overtime is delegated inappropriately to work teams.

Introduction
Fatigue, as it affects control of MAHs, is an issue which has been little-addressed traditionally in inspection and investigation. It is clear however from previous major accidents, and from recent railway accidents especially, that it is often a root cause.

Fatigue refers to the issues that arise from excessive working time or poorly designed shift patterns. Fatigue is a perceived state of 'weariness' caused by prolonged or intensive exertion. Fatigue results in slower reactions, memory lapses, absentminded slips, 'losing the picture', lack of attention etc.

As a minimum, employers, rather than operators, should have a good base shift pattern and monitor changes to the shift patterns and overtime worked on a individual basis for those involved in major hazard work, and have agreed (and reasonable) limits in place to control fatigue risks. Essentially fatigue needs to be managed, like any other hazard. During investigations evidence on possible fatigue should be sought.

Changes to working hours need to be risk assessed. One way of doing this is to use HSE's Fatigue and Risk Index. This Excel spreadsheet has been developed as a simple tool to enable comparison of differing shift patterns and to identify when fatigue risks are excessive. It allows shift patterns to be quickly evaluated prior to any significant changes in structure or hours. It can be applied to assess the shifts and hours worked by key safety critical players (e.g. control room operators, emergency response personnel, maintenance technicians) during normal operation and following incidents.

Employers may need to set limits for working hours and shift patterns and these need to be monitored and enforced.

The Management of Health and Safety at Work Regulations 1999 are the main instrument for risk assessment and management systems to control fatigue. The Working Time Regulations 1998 are of some relevance to managing fatigue (see OC1/6) with assessments for night workers, 48 hour weeks (with opt out), 1 days rest in 7 etc.

It should be remembered that operators may prefer badly designed shift patterns for social reasons e.g. ones which give long breaks between shifts despite having to work 14 hour shifts.

Some good practice guidance on shift roster design

Night shifts

- Restrict number of night shifts (to 4 maximum if possible).
- Allow at least 2 days off following night shift.
- Avoid keeping workers on permanent night shifts.

Early starts

- Move early shift starts before 6am forward (e.g. 7am not 6am start).
- Limit the number of successive early starts ie before 7am (to 4 maximum if possible)
- Shifts involving an early start should be shorter in length to counter the impact of fatigue later in the shift.

Shift length

- If 12-hour shifts worked then no overtime worked in addition.
- Avoid long working hours (more than 50 hours per week).
- If 8/10 hour shifts then no more than 4/2 hours additional overtime to be worked.
- Restrict ‘back to backs’ with 8 hour shifts and avoid entirely with 12 hour shifts.

Rest periods

- Allow minimum of 12 hours between shifts and avoid ‘quick return’ of 8 hours if possible. (Rest period between shifts should permit sufficient time for commuting, meals and sleep.)
- Plan some weekends off, advisably at least every 3 weeks.

Rotation

- Rotate shifts quickly (e.g. every 2-3 days). Avoid rotating shifts every 1-2 weeks.
- Use forward rotation (morning/afternoon/night) for preference.

Social considerations

- Arrange start/finish times of the shift to be convenient for public transport, social and domestic activities.
- Consider travelling time of workforce.
- Allow some individual choice where possible to accommodate larks/owls and family commitments.
- Keep the timing of shifts regular and predicable but also allow employees to have some flexibility to choose their own work schedule.

Specific documents

In addition to the general documents that should be requested prior to the visit (see section 1) it is recommended that the following documents, which are specific to this topic, should also be requested:

- Any policy on working hours;
- Copy of the base shift roster/pattern;
- Copy of computerised sample of working hours over 30 days;
- Site arrangements for overtime.

When the documents are obtained they should be compared with good practice and use the 'Fatigue and Risk Index' (by the HF Inspector) to determine if any shift has high fatigue and risk scores and review a sample of an individuals hours over the last month and examine if this fits with the base roster.

Enforcement and advice

Support for enforcement can be provided where there is evidence of excessive overtime being worked by staff involved in safety critical (MAH) work and operators are not monitoring overtime; or following an incident where fatigue was a significant factor.

HSWA Section 3 responsibilities towards contractors and other non-employee staff on site are especially pertinent.

MHSW Regs 1999 regulations 3 and 5 are the key areas for enforcement.

Guidance

- **Reducing error and influencing behaviour**, HSG48. Available from www.hse.gov.uk/pubns/books/hsg48.htm. This guidance contains a good summary of key fatigue issues on pages 35-37.
- **Managing Shift Work: Health and Safety Guidance**, HSG 256. Available from www.hse.gov.uk/pubns/books/hsg256.htm. Particularly useful for employers, safety representatives, trade union officials, employees, regulators and other stakeholders. By drawing together advice and best practice from a range of sources, the guide explains employer's legal duties, the key risk factors and describes the impact shift work can have on health and safety. It also offers sensible advice on controlling, managing and monitoring the risks of shift work.
- **Good practice guidelines**, www.hse.gov.uk/humanfactors/topics/fatigue.htm
- **Hints and Tips for Shift Workers**, www.hse.gov.uk/humanfactors/topics/fatigue.htm
- **The development of a fatigue / risk index for shiftworkers**, HSE Research Report RR446, www.hse.gov.uk/research/rrhtm/rr446.htm. This guidance includes a spreadsheet calculator.
- **Shift work booklet** from ASLEF, www.aslef.org.uk/hs/rs_fatigue.pdf

Question set: Managing fatigue risks

	Question	Site response	Inspectors view	Improvements needed
1	**Policy** Is there a policy that specifically addresses working hours, overtime and guards against fatigue? • Does the policy demonstrate commitment to the management of this issue? • Have front-line staff been involved in the development and review of the policy? • Does the policy state how risks arising from fatigue related to hours of work and shift work be assessed and controlled? • Does the policy identify who it affects, and outline the responsibilities of management, supervisors and staff? • Is there a periodic review and update of the policy?			
2	**Recognition** Has there been any consideration of hours of work/shift system and their effect on staff? • Did this specifically assess the risk of fatigue in safety critical staff and tasks? • Is the review/risk assessment process repeated at specific intervals? • Have the key pinch points and the underlying causes of fatigue been examined? • Is there an effective classification and recording system for working hours and the causes for exceeding the working policy? • Have they identified what measures are effective for managing fatigue and which are			

	not? • Have employees been consulted in the means for avoiding and managing fatigue?			
3	**Control** Have the site set limits for the number of hours and the type of shift pattern? • What are the consequences if these limits are exceeded? • Are there arrangements for the maximum amount of agreed overtime? • Is any overtime spread equally over all staff and shifts (and how do they know this)? • Is shift swapping allowed and if so how is it monitored and controlled? • Are the consequences of staff taking 2nd jobs when off-shift considered and monitored? • Get the opinion of the staff on the shift pattern.			
4	**Monitoring** • Is there a system of recording working hours, overtime, on-call working? • Is there a robust, effective system for ensuring that the monitoring system triggers changes in staffing levels and workload should the need arise? • Is the monitoring on an individual level?			
5	**Assessment** • Does the shift system conform to HSE's good practice guidelines (sfarp)? • Does the Fatigue and Risk Index indicate any shifts with high fatigue and/or risk scores?			