

[030] SLEEP DEPRIVATION - FE OHS + WELFARE SAFETY GUIDANCE NOTE

- 1) Note that this is a discussion document which should be used to define the minimum standard and procedures required by Formula E Operations Ltd (FEO) with specific regard to staff welfare.
- 2) Local operators or promoters may choose to adopt their own business modus based upon jurisdictional procedures, this is acceptable to FEO if these procedures are at least equivalent to the Formula E Operations procedures defined in this document.
- 3) FEO suppliers and contactors are further required to comply with all applicable health and safety legislation, regulation and guidance in the jurisdictions where they operate regardless of the discussion points in this document.
- 4) The Law: FEO (UK) Ltd has a responsibility to protect all staff from unnecessary risks and encourage and promote the health of its workforce including protecting our staff from the consequence of failing to manage staff welfare across multiple international races.
- 5) The Health and Safety at Work etc Act 1974 and the Workplace (Health, Safety and Welfare) Regulations 1992 require that Employers have a duty to ensure, so far as reasonably practicable, the health, safety and welfare of their employees at work - rest periods are a key area of this legislation.
- 6) Sleep deprivation is a workplace health concern that is often ignored. It can decrease productivity at the workplace as well as being a frequent root-cause for many safety incidents, accidents, and damage to property which has financial implications for FEO as a business.
- 7) Employers are often unaware of the impact sleep deprivation can have on their staff and hence, operations until a serious incident occurs.
- 8) Multiple scholarly articles by neuroscientists including Jeffrey S. Durmer, M.D., Ph.D., and David F. Dinges, Ph.D observe that deficits in daytime performance due to sleep loss are experienced universally and associated with a significant social, financial, and human cost.
- 9) It is further proven that microsleeps, sleep attacks, and lapses in cognition increase with sleep loss as a function of state instability are a significant concern particularly during track building and breakdown periods.
- 10) It is medically proven that sleep deprivation causes performances to decline as persons become less vigilant and show slower response times to various workplace decisions. This can present further serious safety consequences, particularly where using heavy equipment or machinery may be involved. Flexible thinking, decision

making based on new information, the ability to think and innovate are negatively impacted as a result.

- 11) Researchers at Brigham and Women's Hospital in Boston, for example, found that workers performing critical tasks which are heavily reliant on visual perception are at risk of not being able to perform their work adequately if they become sleep-deprived. These can include jobs that have the potential of putting others at risk such as air traffic controllers, crane operators, heavy vehicle drivers etc.
- 12) The FIA has done significant research on sleep deprivation specific to the reduction of accident while driving - this research is relevant and valid to FEO.
- 13) In recent years, numerous high-profile accidents reported in global media were said to be related to the issue of sleep deprivation:
 - *In 2010, as an extreme example, a sleep-deprived pilot caused a Boeing 737 crash in southern India, killing 158 people;*
 - *The disasters at Three Mile Island, Chernobyl, Fukushima and numerous major transport accidents, have to some extent, all been linked to sleep deprivation.*
- 14) Brain imaging studies conducted in laboratory settings have shown that sleep deprivation is associated with activating regions of the brain related to risky decision making, while areas that control rationale and logical thinking show lower levels of activation. This can very much explain why, because of tiredness, irritation, and impatience, we are likely to take actions that ignore the negative implications of our behaviours.
- 15) The following are only some of the statistics worldwide highlighting the effect of sleep deprivation on worker safety (the Institute of Medicine of the National Academies):
 - *The estimated cost of sleep-related workplace accidents in the United States alone is at least 5 Billion Dollars a year;*
 - *There are no specific figures available in the UK for financial year ending 2017, however, anecdotal evidence suggests an equivalency with the United States;*
 - *20% of all serious vehicle injuries are associated with driver sleepiness;*
 - *Highly fatigued workers are 70% more likely to be involved in accidents.*
- 16) Businesses generally struggle to minimize the effects of sleep deprivation at their workplace, as much of the problem is involved with the workers personal choices outside of their working hours including the effects of alcohol consumption, recreational and prescribed medicines.

- 17) Personal factors such as lifestyle, family worries or financial concerns of course, may play a big role in a person's inability to sleep at night.
- 18) On the other hand, job-related issues such as shift-work and turnaround periods resulting in time pressures and irregular working hours in some industries, including specifically the events industry have shown to also add to the problem.
- 19) Bullying and workplace harassment in some cases have also shown to have an impact - this is another key area that FEO requires to review.
- 20) Self-awareness, and not just accepting sleep deprivation as a normal occasional behaviour at the workplace are important first steps for Businesses to begin monitoring the problem.
- 21) Noted below are several practical steps many companies around the world use to reduce the impact of sleep deprivation on their employees:
 - a. Set rules on working times:
 - *This can be done by discouraging the excessive use of company-provided electronic devices (phones, tablets laptops etc.) outside of working hours;*
 - *The issue here is HR driven clarity, in this case FEO would be doing more for their staff by setting limits on employees expected availability after working hours, introducing HR driven policies that limit after-hours and out-of-office communications;*
 - *It is interesting to note that several multinational organisations provide "Nap Rooms" for employees to take short nap breaks during the working hours;*
 - *Applying such concessions of course very much depends on the maturity of the organization and the type of industry involved;*
 - *I would not propose that a siesta is relevant in most circumstances to FEO but staff returning to their hotel room for a sleep before late working is surely relevant to FEO?*
 - b. Managing shift work and split shifts:
 - *FEO needs to be aware of the times when people are most likely to be affected by fatigue;*
 - *Aim to manage shift work and overtime so that employees have regular opportunities for adequate recovery - specifically managing late and overnight working periods during event build and breakdown.*

- c. FEO HR Dept. driven staff health campaigns:
- *Given the work-related risks created because of sleep deprivation, the subject must be highlighted by FEO at some point during each race season;*
 - *Best practice as noted by IOSH is that one month of the year is always designated to highlighting the impact of sleep deprivation throughout a company - this would provide useful information for FEO HR Dept;*
 - *FEO can establish campaigns to advise employees of healthy sleeping habits outside of work, effects of the lack of sleep on mental health, the importance of exercise and sleep deprivation links to cardiovascular disease, lower immune system, type two diabetes, obesity and cancer;*
 - *Methods such as posters, short training sessions, toolbox talks, safety moments before on-site meetings, WhatsApp and companywide email communications can be used to share relevant welfare information;*
 - *Some businesses have introduced "sleep training" as part of their welfare campaigns. Accountancy firm Price Waterhouse Cooper, for example, provided a program involving a specialist sleep expert to all their UK employees in response to the health risks the topic presents.*
- d. Use of technology to monitor and improve workplace safety:
- *Several businesses have begun to use data from wireless sensors to prevent an accident by monitoring employee fatigue levels;*
 - *Such devices can be used to monitor a reduction in heart rate which generally indicates tiredness and a potential lack of concentration;*
 - *This provides an indication to a mobile phone app where a manager can potentially stop staff working and recommend a break;*
 - *Businesses including DHL, Bank of America, Hitachi, BP America and others have introduced devices such as Fitbit and Nike+ to record information related to health, fitness, sleep quality and fatigue levels.*
 - *These devices are also being used by employers to integrate wearable devices into employee wellness programs.*
 - *There is a clear marketing opportunity for FEO to work with Garmin, Fitbit or Nike to adopt technology into staff welfare management.*

e. Cognitive Behavioural Therapy:

- *For some employees, sleep deprivation can turn from an occasional problem to a consistent threat to health;*
- *Some employers as part of their employee wellness programs send employees troubled by poor sleeping to private sessions of cognitive behavioural therapy for insomnia;*
- *This can be a very effective treatment for chronic insomnia and is much preferred to only relying on sleeping tablets;*
- *As a health and safety professional, it is disappointing to think that all our efforts to keep employees safe can be circumvented by a lack of sleep;*
- *It is therefore essential (in my opinion) that the impact of fatigue and sleep deprivation is fully communicated and understood;*
- *Should FEO staff ignore these suggestions and continue to deprive themselves of sleep to the extent that they become a danger for their safety and the safety of others, then FEO may have no choice but to intervene with required educational or disciplinary measures.*

22) This discussion note is by no means exhaustive but gives an indication of the procedure and process which should be considered by FEO as staff workload increases due to business success and the additional of more races season by season.

Richard Bate – Senior HSE Manager FEO Ltd

A handwritten signature in black ink, appearing to read 'Richard Bate', written over a horizontal line.

1st June 2018.