**The Delivery Hub health, safety and environment**

**Raising the bar ??**

Guidance on Night/Shift working

Draft for final H&S review v1 24 February 2016

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**Objective**

To ensure the health, safety and wellbeing of all those that work at night/shifts on our sites.

To provide advice on risk assessment, design of shift-work schedules and the shift-work environment;

To suggest measures this can be used to reduce the negative impact of shift work; and reducing tiredness, poor performance and accidents.

**Background**

Having identified that there was no additional training afforded to people working at night or combined shifts by the delivery partners. Therefore the Highways England 5 year health and safety action plan identified the requirement as action 62.

**Definitions**

There is no specific definition of shift work in law, but it usually means:

* work activity scheduled outside standard daytime hours, where there may be a handover of duty from one individual or work group to another;
* a pattern of work where one employee replaces another on the same job within a 24-hour period.

Standard daytime hours are considered as:

* a work schedule involving an activity during the day, commonly for a period of eight hours between 7.00 am and 7.00 pm. There are usually two periods of work, one in the morning, and the other in the afternoon, separated by a lunch-time break.

In the guidance, all systems of work other than standard daytime hours are considered as shift work. Examples of shift work might be:

* work during the afternoon, night or weekend, typically with periods of the work schedule outside standard daytime hours;
* extended work periods of 12 hours or more, often associated with compressing the working week; rotating hours of work; split shifts, where work periods are divided into two distinct parts with several hours break in between; overtime; standby/on-call duties

**Requirements**

Service Providers are to assess who in their workforce are subject to either shift and/or night work and ensure that the corresponding training brief is delivered.

The material is to be delivered within the attendee’s normal working schedule or an arrangement are to be made ensuring that suitable rest periods are in place prior and/or after the training brief is delivered.

**Presenters**

Those presenting the training brief should have completed a presentation skills course and have the appropriate industry knowledge and experience.

**Facilities**

The following would be required

* suitable seating for all attendees
* IT equipment capable of projecting a slide show and video (mpeg) clip with sound
* Suitable welfare facilities for the attendees

**Legislation/guidance**

Highways England ‘Raising the Bar’ guidance documents can be found at

<https://www.gov.uk/government/collections/health-and-safety-for-major-road-schemes-raising-the-bar-initiative>

Health and Safety Executive guidance for health and safety training

<http://www.hse.gov.uk/pubns/indg345.pdf>

Health and Safety Executive guidance for Shift workers and their employer

<http://www.hse.gov.uk/pubns/priced/hsg256.pdf>

Health and Safety Executive guidance migrant workers

<http://www.hse.gov.uk/migrantworkers/employer.htm>

Appendix 4

# Worked Examples

**F1. Summary & Background**

In this Appendix, there are five worked examples, based upon typical scenarios:

Scenario 1 Office worker normally working days, carrying out a 4 hour H&S night tour on a Monday night, starting at 22.00. Refer to Annex F1.

Scenario 2 Network maintenance worker normally working nights, where the operative may have stayed up all day (Sun, Mon) and then turn up to work on the Monday evening for a sequence of five nightshifts. Refer to Annex F2.

Scenario 3 Network maintenance worker normally working nights, attending a road accident (with Emergency Traffic Management) at night. Refer to Annex F3.

Scenario 4 Supervisor / Manager normally working nights, attending a daytime meeting on a Thursday. Refer to Annex F4.

Scenario 5 Day Time Network maintenance worker in severe weather conditions lasting more than 8 hours, e.g. snow ploughing or dealing with major flooding. Refer to Annex F5.

In order to undertake the calculations, assumptions have been made for the “default settings” on the HSE Fatigue Tool as follows:

Daily Travel: *1 hour* f*rom “place of rest” to and from place of work.*

Rest Breaks: *Every 4 hours for 30 minutes.*

Workload: *Moderately demanding, little spare capacity.*

Attention: *Most of the time.*

It should be noted that the default settings, together with the specific start and finish times will all affect the Fatigue and Risk Index calculations.

## Annex F1

**Office worker normally working days, carrying out a 4 hour H&S night tour on a Monday night, starting at 22.00.**

*(Note: The hours shown in tables are “actual hours on site”. The HSE Calculator has added 1 hour travel to and from site)*

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| Day | Start | Finish | FI | RI |
| Mon | 08:00 | 16:30 | 1.38 | 0.72 |
| Tues | 08:00 | 16:30 | 2.51 | 0.75 |
| Wed | 08:00 | 16:30 | 4.03 | 0.79 |
| Thurs | 08:00 | 16:30 | 5.78 | 0.83 |
| Fri | 08:00 | 16:30 | 7.49 | 0.87 |
| Mon | 08:00 | 16:30 | 2.13 | 0.77 |
| Tues | 08:00 | 16:30 | 3.49 | 0.80 |
| Wed | 08:00 | 16:30 | 5.20 | 0.84 |
| Thurs | 08:00 | 16:30 | 6.94 | 0.88 |
| Fri | 08:00 | 16:30 | 8.55 | 0.92 |
| Mon | 08:00 | 16:30 | 2.23 | 0.78 |
| Tues | 08:00 | 16:30 | 3.64 | 0.82 |
| Wed | 08:00 | 16:30 | 5.36 | 0.86 |
| Thurs | 08:00 | 16:30 | 7.09 | 0.90 |
| Fri | 08:00 | 16:30 | 8.69 | 0.93 |
| Mon | 08:00 | 16:30 | 2.25 | 0.79 |
| Tues | 08:00 | 16:30 | 3.66 | 0.82 |
| Wed | 08:00 | 16:30 | 5.38 | 0.86 |
| Thurs | 08:00 | 16:30 | 7.11 | 0.90 |
| Fri | 08:00 | 16:30 | 8.71 | 0.94 |

 | *The office worker normally works Monday to Friday for 8 hours per day.**The Fatigue Index (FI) and Risk Index (RI) calculations show that this work pattern does not exceed the benchmarks of “35” for Fatigue (on day shift working) and “1.6” for Risk Index.* |

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| Day | Start | Finish | FI | RI |
| Mon | 08:00 | 16:30 | 1.38 | 0.72 |
| Tues | 08:00 | 16:30 | 2.51 | 0.75 |
| Wed | 08:00 | 16:30 | 4.03 | 0.79 |
| Thurs | 08:00 | 16:30 | 5.78 | 0.83 |
| Fri | 08:00 | 16:30 | 7.49 | 0.87 |
| Mon | 08:00 | 16:30 | 2.13 | 0.77 |
| Mon | 22:00 | 02:00 | 18.93 | 1.14 |
| Tues | 14:00 | 16:30 | 13.42 | 0.99 |
| Wed | 08:00 | 16:30 | 14.66 | 1.07 |
| Thurs | 08:00 | 16:30 | 15.18 | 1.11 |
| Fri | 08:00 | 16:30 | 15.60 | 1.14 |
| Mon | 08:00 | 16:30 | 3.13 | 0.86 |
| Tues | 08:00 | 16:30 | 4.77 | 0.89 |
| Wed | 08:00 | 16:30 | 6.53 | 0.93 |
| Thurs | 08:00 | 16:30 | 8.19 | 0.97 |
| Fri | 08:00 | 16:30 | 9.66 | 1.01 |
| Mon | 08:00 | 16:30 | 2.34 | 0.81 |
| Tues | 08:00 | 16:30 | 3.79 | 0.85 |
| Wed | 08:00 | 16:30 | 5.52 | 0.89 |
| Thurs | 08:00 | 16:30 | 7.25 | 0.92 |
| Fri | 08:00 | 16:30 | 8.83 | 0.96 |

 | *The office worker normally works Monday to Friday for 8 hours per day and needs to work an occasional 4 hour Monday night Health & Safety Tour.**The example shows the office worker undertaking their normal 8 hour Monday shift and returning to undertake a 4 hour Health and Safety Tour at 2200 until 0200.**The “Standard Rules” require a 12 hour rest between shifts (as recommended by HSE under 6.33 of the “ORR Managing Rail staff Fatigue”, therefore the office worker should not return to work until after 1400hrs the following day.**The Fatigue Index (FI) and Risk Index (RI) calculations show that this work pattern does not exceed the benchmarks of “35” for the daytime working or “45” for Fatigue (on night shift working) and “1.6” for Risk Index.* |

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| Day | Start | Finish | FI | RI |
| Mon | 08:00 | 16:30 | 1.38 | 0.72 |
| Mon | 22:00 | 02:00 | 17.67 | 1.08 |
| Tues | 14:00 | 16:30 | 12.07 | 0.94 |
| Wed | 08:00 | 16:30 | 13.42 | 1.02 |
| Thurs | 08:00 | 16:30 | 14.12 | 1.06 |
| Fri | 08:00 | 16:30 | 14.71 | 1.10 |
| Mon | 08:00 | 16:30 | 2.98 | 0.84 |
| Mon | 22:00 | 02:00 | 20.00 | 1.22 |
| Tues | 14:00 | 16:30 | 14.57 | 1.06 |
| Wed | 08:00 | 16:30 | 15.72 | 1.14 |
| Thurs | 08:00 | 16:30 | 16.07 | 1.18 |
| Fri | 08:00 | 16:30 | 16.37 | 1.22 |
| Mon | 08:00 | 16:30 | 3.26 | 0.88 |
| Mon | 22:00 | 02:00 | 20.28 | 1.27 |
| Tues | 14:00 | 16:30 | 14.87 | 1.10 |
| Wed | 08:00 | 16:30 | 15.99 | 1.18 |
| Thurs | 08:00 | 16:30 | 16.31 | 1.22 |
| Fri | 08:00 | 16:30 | 16.58 | 1.26 |
| Mon | 08:00 | 16:30 | 3.30 | 0.89 |
| Mon | 22:00 | 02:00 | 20.32 | 1.29 |
| Tues | 14:00 | 16:30 | 14.90 | 1.11 |
| Wed | 08:00 | 16:30 | 16.02 | 1.20 |
| Thurs | 08:00 | 16:30 | 16.34 | 1.24 |
| Fri | 08:00 | 16:30 | 16.60 | 1.27 |

 | *The office worker normally works Monday to Friday for 8 hours per day and needs to undertake a 4 hour Monday night Health & Safety Tour each week.**The example shows the office worker undertaking their normal 8 hour day shift and returning to undertake a 4 hour Health and Safety Tour at 22.00 until 0200.**The “Standard Rules” require a 12 hour rest between shifts (as recommended by HSE under 6.33 of the “ORR Managing Rail staff Fatigue”, therefore the office worker should not return to work until after 1400hrs the following day.**The Fatigue Index (FI) and Risk Index (RI) calculations show that this work pattern does not exceed the benchmarks of “35” for the daytime working or “45” for Fatigue (on night shift working) and “1.6” for Risk Index.* |

## Annex F2

**Network maintenance worker normally working nights, where the operative may have stayed up all day (Sun, Mon) and then turn up to work on the Monday evening for a sequence of five nightshifts.**

*(Note: The hours shown in tables are “actual hours on site”. The HSE Calculator has added 1 hour travel to and from site)*

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| Day | Start | Finish | FI | RI |
| Mon | 20:30 | 05:30 | 28.18 | 0.87 |
| Tues | 20:30 | 05:30 | 29.88 | 0.97 |
| Wed | 20:30 | 05:30 | 33.37 | 1.08 |
| Thurs | 20:30 | 05:30 | 36.65 | 1.19 |
| Fri | 20:30 | 05:30 | 39.14 | 1.29 |
| Mon | 20:30 | 05:30 | 29.62 | 0.99 |
| Tues | 20:30 | 05:30 | 33.04 | 1.10 |
| Wed | 20:30 | 05:30 | 36.38 | 1.20 |
| Thurs | 20:30 | 05:30 | 38.94 | 1.31 |
| Fri | 20:30 | 05:30 | 40.81 | 1.42 |
| Mon | 20:30 | 05:30 | 29.99 | 1.02 |
| Tues | 20:30 | 05:30 | 33.49 | 1.13 |
| Wed | 20:30 | 05:30 | 36.74 | 1.24 |
| Thurs | 20:30 | 05:30 | 39.21 | 1.34 |
| Fri | 20:30 | 05:30 | 41.01 | 1.45 |
| Mon | 20:30 | 05:30 | 30.04 | 1.03 |
| Tues | 20:30 | 05:30 | 33.55 | 1.14 |
| Wed | 20:30 | 05:30 | 36.79 | 1.25 |
| Thurs | 20:30 | 05:30 | 39.24 | 1.35 |
| Fri | 20:30 | 05:30 | 41.03 | 1.46 |

 | *The maintenance worker generally working night shifts Monday to Friday (20:30 – 05:30).**In this example (using the previously noted default settings for HSE Tool) the worker is fully compliant with expectations provided in this IAN.* |

## Annex F3

**Network maintenance worker normally working nights, attending a road accident (with Emergency Traffic Management) at night.**

*(Note: The hours shown in tables are “actual hours on site”. The HSE Calculator has added 1 hour travel to and from site)*

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| Day | Start | Finish | FI | RI |
| Mon | 20:30 | 05:30 | 28.18 | 0.87 |
| Tues | 20:30 | 05:30 | 29.88 | 0.97 |
| Wed | 20:30 | 05:30 | 33.37 | 1.08 |
| Thurs | 20:30 | 05:30 | 36.65 | 1.19 |
| Fri | 20:30 | 05:30 | 39.14 | 1.29 |
| Mon | 20:30 | 05:30 | 29.62 | 0.99 |
| Tues | 20:30 | 05:30 | 33.04 | 1.10 |
| Wed | 20:30 | 05:30 | 36.38 | 1.20 |
| Thurs | 20:30 | 05:30 | 38.94 | 1.31 |
| Fri | 20:30 | 05:30 | 40.81 | 1.42 |
| Mon | 20:30 | 05:30 | 29.99 | 1.02 |
| Tues | 20:30 | 05:30 | 33.49 | 1.13 |
| Wed | 20:30 | 05:30 | 36.74 | 1.24 |
| Thurs | 20:30 | 05:30 | 39.21 | 1.34 |
| Fri | 20:30 | 05:30 | 41.01 | 1.45 |
| Mon | 20:30 | 05:30 | 30.04 | 1.03 |
| Tues | 20:30 | 05:30 | 33.55 | 1.14 |
| Wed | 20:30 | 05:30 | 36.79 | 1.25 |
| Thurs | 20:30 | 05:30 | 39.24 | 1.35 |
| Fri | 20:30 | 05:30 | 41.03 | 1.46 |

 | *As in the previous scenario (Annex F2) the maintenance worker is working night shifts Monday to Friday (20:30 – 05:30).**In this example (using the previously noted default settings for HSE Tool) the worker is fully compliant with expectations provided in this IAN.* |

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| --- | --- | --- | --- | --- |
| Day | Start | Finish | FI | RI |
| Mon | 20:30 | 05:30 | 28.18 | 0.87 |
| Tues | 20:30 | 05:30 | 29.88 | 0.97 |
| Wed | 20:30 | 05:30 | 33.37 | 1.08 |
| Thurs | 20:30 | 05:30 | 36.65 | 1.19 |
| Fri | 20:30 | 05:30 | 39.14 | 1.29 |
| Mon | 20:30 | 05:30 | 29.62 | 0.99 |
| Tues | 20:30 | 05:30 | 33.04 | 1.10 |
| Wed | 20:30 | 05:30 | 36.38 | 1.20 |
| Thurs | 20:30 | 05:30 | 38.94 | 1.31 |
| Fri | 20:30 | 08:30 | 51.55 | 1.68 |
| Mon | 20:30 | 05:30 | 30.32 | 1.05 |
| Tues | 20:30 | 05:30 | 33.87 | 1.15 |
| Wed | 20:30 | 05:30 | 37.05 | 1.26 |
| Thurs | 20:30 | 05:30 | 39.43 | 1.37 |
| Fri | 20:30 | 05:30 | 41.17 | 1.47 |
| Mon | 20:30 | 05:30 | 30.07 | 1.04 |
| Tues | 20:30 | 05:30 | 33.60 | 1.15 |
| Wed | 20:30 | 05:30 | 36.82 | 1.25 |
| Thurs | 20:30 | 05:30 | 39.27 | 1.36 |
| Fri | 20:30 | 05:30 | 41.05 | 1.47 |

 | *In this example, we have identified a potential issue where the worker has had to work additional hours on the Friday (highlighted in yellow) due to an unplanned incident.**Generally, the worker would normally work their planned hours, however, we are assuming here that for some reason the worker has had to remain at work.**The worker is shown as working 12 hours from 20.30 until 08.30 and as a result both the calculated Fatigue and Risk Index’s have been exceeded (“45” and “1.6” respectively.**As this is an unplanned event, it would be expected that an “Extension of hours risk assessment” (an example of which is included at Annex B) will be completed by the appropriate person which may be a supervisor or Senior Manager.* |

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| --- | --- | --- | --- | --- |
| Day | Start | Finish | FI | RI |
| Mon | 20:30 | 05:30 | 28.18 | 0.87 |
| Tues | 20:30 | 05:30 | 29.88 | 0.97 |
| Wed | 20:30 | 05:30 | 33.37 | 1.08 |
| Thurs | 20:30 | 05:30 | 36.65 | 1.19 |
| Fri | 20:30 | 05:30 | 39.14 | 1.29 |
| Mon | 20:30 | 05:30 | 29.62 | 0.99 |
| Tues | 20:30 | 05:30 | 33.04 | 1.10 |
| Wed | 20:30 | 05:30 | 36.38 | 1.20 |
| Thurs | 20:30 | 05:30 | 38.94 | 1.31 |
| Fri | 20:30 | 06:30 | 44.78 | 1.49 |
| Mon | 20:30 | 05:30 | 30.10 | 1.05 |
| Tues | 20:30 | 05:30 | 33.61 | 1.15 |
| Wed | 20:30 | 05:30 | 36.84 | 1.26 |
| Thurs | 20:30 | 05:30 | 39.28 | 1.37 |
| Fri | 20:30 | 05:30 | 41.06 | 1.47 |
| Mon | 20:30 | 05:30 | 30.05 | 1.04 |
| Tues | 20:30 | 05:30 | 33.56 | 1.15 |
| Wed | 20:30 | 05:30 | 36.80 | 1.25 |
| Thurs | 20:30 | 05:30 | 39.25 | 1.36 |
| Fri | 20:30 | 05:30 | 41.04 | 1.47 |

 | *Using the example above: if this was not an unplanned event, but a planned event which necessitated the worker being required to work longer than his / her normal 20.30 – 05.30 shift, the HSE Tool calculations show that a maximum of 1 additional hour could be planned for the Friday highlighted without exceeding the Fatigue or Risk Index benchmarks.* |

## Annex F4

**Supervisor / Manager normally working nights, attending a daytime meeting on a Thursday.**

*(Note: The hours shown in tables are “actual hours on site”. The HSE Calculator has added 1 hour travel to and from site)*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Day | Start | Finish | FI | RI |
| Mon | 20:30 | 05:30 | 28.18 | 0.87 |
| Tues | 20:30 | 05:30 | 29.88 | 0.97 |
| Wed | 20:30 | 05:30 | 33.37 | 1.08 |
| Thurs | 20:30 | 05:30 | 36.65 | 1.19 |
| Fri | 20:30 | 05:30 | 39.14 | 1.29 |
| Mon | 20:30 | 05:30 | 29.62 | 0.99 |
| Tues | 20:30 | 05:30 | 33.04 | 1.10 |
| Wed | 20:30 | 05:30 | 36.38 | 1.20 |
| Thurs | 20:30 | 05:30 | 38.94 | 1.31 |
| Fri | 20:30 | 05:30 | 40.81 | 1.42 |
| Mon | 20:30 | 05:30 | 29.99 | 1.02 |
| Tues | 20:30 | 05:30 | 33.49 | 1.13 |
| Wed | 20:30 | 05:30 | 36.74 | 1.24 |
| Thurs | 20:30 | 05:30 | 39.21 | 1.34 |
| Fri | 20:30 | 05:30 | 41.01 | 1.45 |
| Mon | 20:30 | 05:30 | 30.04 | 1.03 |
| Tues | 20:30 | 05:30 | 33.55 | 1.14 |
| Wed | 20:30 | 05:30 | 36.79 | 1.25 |
| Thurs | 20:30 | 05:30 | 39.24 | 1.35 |
| Fri | 20:30 | 05:30 | 41.03 | 1.46 |

 | *As in the previous scenario (Annex F2) the supervisor/manager is working night shifts Monday to Friday (20:30 – 05:30).**In this example (using the previously noted default settings for HSE Tool) the worker is fully compliant with expectations provided in this IAN.* |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Day | Start | Finish | FI | RI |
| Mon | 20:30 | 05:30 | 28.18 | 0.87 |
| Tues | 20:30 | 05:30 | 29.88 | 0.97 |
| Wed | 20:30 | 05:30 | 33.37 | 1.08 |
| Thurs | 20:30 | 08:30 | 48.15 | 1.40 |
| Fri | 20:30 | 05:30 | 40.39 | 1.29 |
| Mon | 20:30 | 05:30 | 29.89 | 0.99 |
| Tues | 20:30 | 05:30 | 33.37 | 1.09 |
| Wed | 20:30 | 05:30 | 36.64 | 1.20 |
| Thurs | 20:30 | 05:30 | 39.14 | 1.31 |
| Fri | 20:30 | 05:30 | 40.96 | 1.41 |
| Mon | 20:30 | 05:30 | 30.02 | 1.02 |
| Tues | 20:30 | 05:30 | 33.53 | 1.13 |
| Wed | 20:30 | 05:30 | 36.77 | 1.24 |
| Thurs | 20:30 | 05:30 | 39.23 | 1.34 |
| Fri | 20:30 | 05:30 | 41.03 | 1.45 |
| Mon | 20:30 | 05:30 | 30.04 | 1.03 |
| Tues | 20:30 | 05:30 | 33.55 | 1.14 |
| Wed | 20:30 | 05:30 | 36.79 | 1.25 |
| Thurs | 20:30 | 05:30 | 39.24 | 1.35 |
| Fri | 20:30 | 05:30 | 41.03 | 1.46 |

 | *The supervisor/manager is looking to extend their working day to a maximum of 12 hours to attend an early meeting on Thursday.**As can be seen, the HSE Tool calculation shows that the supervisor/manager would exceed the Fatigue Index.**Although reducing this shift to 11 hours instead of 12 hours would provide a Fatigue Calculation of 44.7 which is acceptable, it is unlikely that there would be any meeting that would conclude before 07.30.**As a result there are a number of alternative potential solutions to consider, to allow attendance at a daytime meeting on the Thursday.**2 examples are shown below:* |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Day | Start | Finish | FI | RI |
| Mon | 20:30 | 05:30 | 28.18 | 0.87 |
| Tues | 20:30 | 05:30 | 29.88 | 0.97 |
| Wed | 20:30 | 05:30 | 37.34 | 1.08 |
| Thurs | 09:30 | 12:30 | 23.12 | 1.10 |
|  Fri | 00:30 | 05:30 | 25.67 | 1.38 |
| Fri | 20:30 | 05:30 | 45.48 | 1.57 |
| Mon | 20:30 | 05:30 | 31.88 | 1.07 |
| Tues | 20:30 | 05:30 | 35.39 | 1.17 |
| Wed | 20:30 | 05:30 | 41.01 | 1.28 |
| Thurs | 09:30 | 12:30 | 25.12 | 1.25 |
|  Fri | 00:30 | 05:30 | 28.90 | 1.57 |
| Fri | 20:30 | 05:30 | 46.59 | 1.77 |
| Mon | 20:30 | 05:30 | 32.71 | 1.12 |
| Tues | 20:30 | 05:30 | 36.10 | 1.23 |
| Wed | 20:30 | 05:30 | 41.39 | 1.34 |
| Thurs | 09:30 | 12:30 | 25.34 | 1.30 |
|  Fri | 00:30 | 05:30 | 29.24 | 1.62 |
| Fri | 20:30 | 05:30 | 46.71 | 1.82 |
| Mon | 20:30 | 05:30 | 32.83 | 1.14 |
| Tues | 20:30 | 05:30 | 36.20 | 1.25 |
| Wed | 20:30 | 05:30 | 41.44 | 1.35 |
| Thurs | 09:30 | 12:30 | 25.36 | 1.31 |
|  Fri | 00:30 | 05:30 | 29.28 | 1.64 |
| Fri | 20:30 | 05:30 | 46.73 | 1.84 |

 | *In this example, the supervisor/manager is to attend a Thursday morning meeting from 0930 until 12.30 every Thursday morning.**After finishing his Wednesday night shift at 05.30 the supervisor/manager would return to his / her place of rest before attending the meeting later that morning (Thursday).**After leaving the meeting at 12.30, the supervisor / manager would not be able to commence work again for 12 hours meaning he / she would not start his / her shift until Friday morning at 00.30. The example shows that he / she would finish at his /her normal time of 05.30, however this working pattern does not provide compliance after the first week and would need additional control measures to reduce fatigue risks.* |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Day | Start | Finish | FI | RI |
| Mon | 20:30 | 05:30 | 28.18 | 0.87 |
| Tues | 20:30 | 05:30 | 29.88 | 0.97 |
| Wed | 20:30 | 05:30 | 36.36 | 1.08 |
| Thurs | 12:30 | 16:30 | 17.17 | 1.01 |
| Fri | 20:30 | 05:30 | 39.44 | 1.24 |
| Mon | 20:30 | 05:30 | 29.68 | 0.97 |
| Tues | 20:30 | 05:30 | 33.11 | 1.08 |
| Wed | 20:30 | 05:30 | 38.78 | 1.19 |
| Thurs | 12:30 | 16:30 | 19.52 | 1.10 |
| Fri | 20:30 | 05:30 | 41.10 | 1.34 |
| Mon | 20:30 | 05:30 | 30.06 | 1.00 |
| Tues | 20:30 | 05:30 | 33.57 | 1.11 |
| Wed | 20:30 | 05:30 | 39.07 | 1.22 |
| Thurs | 12:30 | 16:30 | 19.80 | 1.12 |
| Fri | 20:30 | 05:30 | 41.29 | 1.37 |
| Mon | 20:30 | 05:30 | 30.11 | 1.01 |
| Tues | 20:30 | 05:30 | 33.63 | 1.12 |
| Wed | 20:30 | 05:30 | 39.10 | 1.22 |
| Thurs | 12:30 | 16:30 | 19.83 | 1.13 |
| Fri | 20:30 | 05:30 | 41.31 | 1.38 |

 | *The recommended option to allow the supervisor/manager to attend a meeting on Thursday would be to complete the Wednesday night shift and return to their place of rest.**The roster would be planned to allow the supervisor/manager to return for 4 hours at 12.30 on Thursday.**Upon completion of this 4 hour period, the supervisor/manager would not return to work until the commencement of his next normal shift at 20.30 on Friday.**The HSE Tool calculations show no exceedances to either Risk or Fatigue Index for this working pattern.* |

## Annex F5

**Network maintenance worker in severe weather conditions lasting more than 8 hours, e.g. snow ploughing or dealing with major flooding.**

*(Note: The hours shown in tables are “actual hours on site”. The HSE Calculator has added 1 hour travel to and from site)*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Day | Start | Finish | FI | RI |
| Mon | 07:00 | 16:00 | 1.84 | 0.74 |
| Tues | 07:00 | 16:00 | 3.48 | 0.78 |
| Wed | 07:00 | 16:00 | 5.99 | 0.82 |
| Thurs | 07:00 | 16:00 | 8.71 | 0.86 |
| Fri | 07:00 | 16:00 | 11.17 | 0.90 |
| Mon | 07:00 | 16:00 | 2.98 | 0.76 |
| Tues | 07:00 | 16:00 | 5.32 | 0.80 |
| Wed | 07:00 | 16:00 | 8.05 | 0.84 |
| Thurs | 07:00 | 16:00 | 10.59 | 0.88 |
| Fri | 07:00 | 16:00 | 12.75 | 0.91 |
| Mon | 07:00 | 16:00 | 3.18 | 0.76 |
| Tues | 07:00 | 16:00 | 5.59 | 0.80 |
| Wed | 07:00 | 16:00 | 8.32 | 0.84 |
| Thurs | 07:00 | 16:00 | 10.82 | 0.88 |
| Fri | 07:00 | 16:00 | 12.94 | 0.92 |
| Mon | 07:00 | 16:00 | 3.21 | 0.76 |
| Tues | 07:00 | 16:00 | 5.63 | 0.80 |
| Wed | 07:00 | 16:00 | 8.36 | 0.84 |
| Thurs | 07:00 | 16:00 | 10.86 | 0.88 |
| Fri | 07:00 | 16:00 | 12.96 | 0.92 |

 | *This Network Maintenance Worker is working a 07.00 – 16.00 midweek day shift pattern.**Both the Risk Index and Fatigue Index are well within the 1.6 and 35 respective benchmarks. (Note the Fatigue Index is “35” for day time working and “45” for night time working)* |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Day | Start | Finish | FI | RI |
| Mon | 07:00 | 16:00 | 1.84 | 0.74 |
| Tues | 07:00 | 16:00 | 3.48 | 0.78 |
| Wed | 07:00 | 16:00 | 5.99 | 0.82 |
| Thurs | 07:00 | 16:00 | 8.71 | 0.86 |
| Fri | 07:00 | 16:00 | 11.17 | 0.90 |
| Mon | 07:00 | 19:30 | 4.74 | 0.98 |
| Tues | 07:00 | 19:30 | 7.12 | 1.03 |
| Wed | 07:00 | 19:30 | 10.37 | 1.08 |
| Thurs | 07:00 | 19:30 | 13.33 | 1.13 |
| Fri | 07:00 | 19:30 | 15.76 | 1.18 |
| Mon | 07:00 | 16:00 | 4.19 | 0.76 |
| Tues | 07:00 | 16:00 | 6.84 | 0.80 |
| Wed | 07:00 | 16:00 | 9.51 | 0.84 |
| Thurs | 07:00 | 16:00 | 11.84 | 0.88 |
| Fri | 07:00 | 16:00 | 13.78 | 0.92 |
| Mon | 07:00 | 16:00 | 3.32 | 0.76 |
| Tues | 07:00 | 16:00 | 5.78 | 0.80 |
| Wed | 07:00 | 16:00 | 8.50 | 0.84 |
| Thurs | 07:00 | 16:00 | 10.99 | 0.88 |
| Fri | 07:00 | 16:00 | 13.07 | 0.92 |

 | *This example is to demonstrate that a Network Maintenance Worker is able to work extended hours to cover extreme conditions such as snow ploughing or flooding.**The Network Maintenance Worker is shown as having to work a full week of 12 hour day shifts for the extreme conditions.**Both the Risk Index and Fatigue Index are still within the 1.6 and 35 respective benchmarks. (Note the Fatigue Index is “35” for day time working and “45” for night time working)**NOTE:**A Network Maintenance worker working on the night shift roster would need to follow the example shown in Annex F3 for any additional hours required for the extreme conditions.* |