SMS Optimised Practice

ANSP	Airservices	Date of submission	28 September 2023
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SoE Study Area	Fatigue Risk Management
OP/GP title	FRMS2
In use since	2013 (with refined practices introduced in 2014, 2016 and 2018)
ANSPs using this practice	Nil

Brief Description: Airservices employs 1000 Air Traffic Controllers, all of whom work individual rosters under a Fatigue Risk Management System that manages both planned rosters and tactical variations. The approach continues to be evolved and tailored to other job functions within Airservices including Aviation Rescue Fire Fighters and Technical Maintenance roles.

Justification for Optimised Practice: Airservices use of a risk management approach has realised a reduction in the fatigue of the controller population, whilst enabling improved work/life balance flexibility compared with a prescriptive approach. Airservices FRMS achieves compliance with ICAO Annex 11 requirements but continues to be refined through continuous improvement efforts. Over the 2022/23 period, several trials have been conducted to test new shift patterns using sleep tracking wearables for both ATC and ARFFS, and support the development of eye tracking technology as a potential real-time approach to monitoring fatigue. Finally, FRMS-related requirements were developed to support the acquisition of a new rostering system with a focus on enabling the implementation of a similar tactical variation approach for ARFFS and improving reporting capabilities.

Detailed Description of FRMS2: The system incorporates work scheduling, education and promotion and assurance components.

Work Scheduling: A set of work scheduling requirements for planned rosters are premised on scientific knowledge with regard to fatigue and sleep. The requirements have been refined on the basis of assurance conducted since the system's introduction. All planned rosters are also checked against a bio-mathematical model (FAID) and must not exceed a peak score of 80.4.

The system also requires an assessment of any proposed changes to published rosters. Our rostering system incorporates software algorithms (developed in-house) and workflow that support a tactical fatigue risk assessment process that is used when a shift needs to be filled. The software:

- identifies available ATCs with the appropriate endorsements and lists their fatigue potential. This potential is calculated on the basis of the degree to which the proposed shift deviates from the planning rules. The ATC with the lowest fatigue potential must be asked to fill the shift, if they decline, those with higher fatigue potential are engaged;
- incorporates a risk assessment that is completed by a Line Manager that addresses the fatigue potential of the nominated staff member and the shift attributes (e.g. traffic levels, weather, degraded equipment). This results in an initial fatigue risk level;
- requires that the Line Manager considers which controls or mitigators can be enacted to reduce the initial risk level, and make an assessment of the residual risk level following the application of the controls/mitigators;
- automatically allocates the controls/mitigators to the day on which the fatigue risk will manifest, i.e. the fatigue impact may not be realised on the day of the additional shift, but in the days following when the ATC exceeds the maximum number of consecutive shifts;

- will, in situations when a number of consecutive shifts are worked that are classified as having low fatigue risk, automatically raise the level of the following shifts (until an extended rest period), requiring fatigue controls to be implemented;
- require risk sign off by management dependent on the level of residual fatigue risk present.

Staff and managers are provided with visibility of the fatigue controls to be applied via a printed day of operations sheet.

A further work scheduling control used is that staff are only allowed to mutually change shifts that have either no or low fatigue risk.

Education and Promotion: Fatigue management is delivered in initial training of our safety-sensitive staff. ATCs must complete refresher fatigue awareness on a recurrent basis. Internally promotion focuses on:

- our approach fatigue management,
- the mutual accountability that exists in relation to fatigue management,
- how fatigue impacts on performance, and
- how individuals (and families) can work to reduce fatigue in shift workers.

Assurance:

Reporting of fatigue management system compliance and performance is delivered to senior and middle management on a monthly basis. Reporting includes information on the percentage of worked shifts with elevated fatigue levels; day-of-operations controls that were implemented, and the number of occasions where fatigue assessments were not completed. Planned hours of work versus actual hours of work are also assessed against exposure thresholds – the results consistently demonstrate that 98% of worked hours are worked with a FAID score of less than 65 for 24 hour shift patterns and 52 for non-24 hour shift patterns.

System level reviews have been conducted on an 18 month basis since the implementation of FRMS2. In 2018, Airservices formed a Fatigue Safety Action Group (FSAG) with union officials and management in efforts to be more agile in how we respond to both fatigue issues and the overall performance of the system.

The FSAG meets on a regular basis and is responsible for defining system reviews and sleep and performance studies and has implemented tools to support the proactive collection of subjective/qualitative information to better understand how ATCOs experience fatigue in operations.

For Optimised Practices, this document should be sent together with the SoE in SMS questionnaire, to: soe_2021@eurocontrol.int **by 31st July 2021 at the latest**.

Submissions for consideration as Good Practices may be sent by the above date. They may also be identified during the survey interview sessions with the survey team, following which a Good Practice submission document will be requested.