
Fatigue review final report: implementation considerations

Overview

A team of leading international specialists has confirmed the need to modernise Australia's fatigue rules for air operators and pilots.

The CASA Board has released the final report of the **independent review of aviation fatigue rules for operators and pilots** <<https://www.casa.gov.au/standard-page/independent-review-aviation-fatigue-rules-operators-and-pilots>> . It includes 24 recommendations to improve the fatigue rules contained in CAO 48.1 Instrument 2013 and their implementation.

The independent review considered the safety need for updating the rules, processes underpinning their development and communication to industry, their scientific basis and validity, international alignment, and the impact on the Australian aviation industry.

Key recommendations to improve the fatigue rules include:

- Revising flight duty period (FDP) limitations by adopting limits more closely aligned with international averages.
- Increasing the flexibility of the Fatigue Risk Management System (FRMS) option to enhance scalability through additional risk-based tiers.
- Introducing a standardised approval process (other than an FRMS) to offer limited flexibility for operators to operate beyond the prescriptive limits with specific fatigue risk mitigation measures in place.
- Removing Part 137 aerial application operations from CAO 48.1 or adopting limits from CASR Sub part 137.Q.
- A freeze on transition dates until changes flowing from the review are finalised in CAO 48.1 and material to support industry is ready.
- Allocating appropriate resources to plan a detailed, coordinated implementation for finalising the reform of CAO 48.1.
- A staggered approach to the next phase of change—addressing the highest risk areas first.

Why we are consulting

This consultation invited the aviation community to comment on the recommendations in the review's final report. It was an opportunity for industry stakeholders to raise any implementation issues and provide feedback to CASA on the highest priorities for action.

Download the Fatigue Review Final Report

[<user_uploads/casa_independent_fatigue_review_final-report_20mar18a.pdf>](#)

Introductory text

The independent review team made 24 recommendations to CASA for improving the reform of the fatigue rules.

Survey overview and how to respond

In this survey, the recommendations are grouped into five key themes:

1. Fatigue-related safety data
2. Flight duty period limitations
3. Fatigue Risk Management Systems (FRMS)
4. Communication, guidance and support
5. Regulation development, implementation and transition approach

You will be asked to comment on any issues you would like CASA to consider in responding to the review recommendations and identify the matters you consider most important .

How to complete the survey

Please click on each page listed below and provide your comments.

You have the option to complete the whole survey or provide feedback on the recommendations of interest to you.

The survey includes the option to 'save and come back later'.

Once you have completed the sections you want to provide feedback on, click on the 'finish' button at the bottom right of the page.

About this consultation

This consultation asks for your input on issues you would like CASA to consider in responding to the recommendations of the independent review of the fatigue rules.

We will ask you for:

- **personal information**, such as your name, any organisation you represent, and your email address
- **demographic information**, to identify your relevant interest
- **your consent** to publish your submission
- **your responses** to the questions
- **any comments** you may want to provide.

Our website contains more information on **making a submission and what we do with your feedback** <<https://www.casa.gov.au/rules-and-regulations/landing-page/consultation-process>> .

Consent to publish your response

In order to promote debate and transparency, CASA intends to publish all responses to this consultation. This may include both detailed responses/submissions in full and aggregated data drawn from the responses received.

Where you consent to publication, we will include:

- **your name**, if the submission is made by you as an individual or the name of the **organisation** on whose behalf the submission has been made
- **your responses and comments.**

We will not include any other personal or demographic information in a published response.

Do you give permission for your response to be published?

(Required)

Please select only one item

Yes - I give permission for my response/submission to be published

No - I would like my response/submission to remain confidential but understand that de-identified aggregate data may be published.

No – I am a CASA officer.

Personal information

First name

(Required)

Last name

(Required)

Email

(Required)

Do your views officially represent those of an organisation?

(Required)

Please select only one item

Yes No Don't know

If yes, please specify which organisation you represent

Fatigue related safety data

The independent review made one recommendation relating to **fatigue-related safety data**. Please comment on this recommendation below.

Recommendation 1

Independent review findings related to Recommendation 1

“CASA’s objective of protecting the aviation industry from risks associated with pilot fatigue is logical, and consistent with the principle of developing regulations designed to address known or likely safety risks. As stated in the CAO 48.1 Regulation Impact Statement (Annex E to NPRM 1202OS; Civil Aviation Safety Authority, 2012): “while it is difficult to quantify the likely reduction in the fatigue related accident risk, indicative international evidence suggests that the proposed option will generate safety benefits.”

The Review Team noted several difficulties in definitively linking fatigue as a formal contributing factor to safety occurrences. Analysis of fatigue-related safety events demonstrates that making a direct link between fatigue, Flight Time Limits and safety events is problematic, for reasons including the following:

- Fatigue is typically only one of a complex combination of factors that influences performance leading to a safety occurrence.
- The investigation of fatigue is not well standardised and can vary considerably depending on the background, expertise and focus of the safety investigator/s involved. Even if an investigator is predisposed to consider fatigue as a contributing factor, its influence is difficult to confirm and cannot be ‘measured’ reliably even if recent work / rest data for crew involved is available.
- Few safety events occur at the margins of prescribed Flight Time Limits (late in an FDP), so there is insufficient empirical data to determine whether different limits would or would not have influenced crew alertness levels and led to a different outcome.
- In many safety events, reported crew fatigue resulted from non-FDP factors such as limited sleep, associated with inadvertent domestic or psychosocial factors. This implies that education for crew members on fatigue prevention, recognition and management will continue to be important in the overall fatigue risk management strategy.” (p. 19)

Recommendation 1: That CASA collaborates with the Australian Transport Safety Bureau (ATSB) to develop an agreed definition of a 'fatigue-related safety occurrence', in order to generate and publish more definitive data on fatigue related safety events in the Australian aviation industry.

Are there any issues you would like CASA to consider in responding to Recommendation 1?

Please provide details below:

Flight duty period limitations

The independent review made six recommendations relating to **flight duty period limitations** - Recommendations 2, 3, 7, 8, 9 and 12.

Please comment on these recommendations below.

Recommendation 2

Independent review findings related to Recommendation 2

“Although CASA has identified several different groups of operations, and classified these into subsets (Appendices) within the proposed CAO 48.1 rules, within each of these categories there is still substantial diversity in the operations being conducted. This may disadvantage some operators by imposing a rule set which is overly prescriptive, or not suited to the characteristics of their operation, even though their operations fall clearly into one of the nominated Appendices. Some requirements of “special operations”, for example, including counter terrorism, may fall outside the prescribed limits of an Appendix, however there is currently no relief from this other than via an approved FRMS, which may not be always appropriate for some operators such as those who cannot foresee their mission demands. One example of this is a Police Air Wing that may be required on occasions to deal with critical public safety emergencies that fall outside the limits of their relevant Appendix. In such cases, it is believed that cautious flexibility could be provided by CASA under a standardised application and approval process.” (p. 21)

Recommendation 2: That where an operator chooses to conduct its operations under a specific Appendix, other than Appendix 1 (prescriptive limits) or Appendix 7 (FRMS), CASA amends Appendices 2 to 6 to provide operators some limited scope for flexibility with respect to compliance with the rules using a standardised approval process. This process will enable CASA to show that it considers fatigue mitigation to be appropriate relative to the risk exposure profile.

Are there any issues you would like CASA to consider in responding to Recommendation 2 (such as unintended consequences, costs or suggested approaches)?

Please provide details below:

Recommendation 3

Independent review findings related to Recommendation 3

“The Review Team finds that the prescriptive limits in some areas of CAO 48.1 are conservative when compared to corresponding provisions in other international jurisdictions. Appendix 2 operations are comparable with other international operations, and not necessarily specific to Australia, so the FDP limits seem inconsistent with other ‘science based’ limits. Table 4 above illustrates the comparative limits and indicates where the conservatism is most prevalent.

There are also disparities in single-pilot FDPs across several appendices. The reason for these, which in some cases allow longer FDP limits for more complex operations, is unclear. Adding an explanatory note to CAAP 48-1 which outlines the relationship between operating risk, public risk, and fatigue management, and which provides some clarity for the reasons behind disparities between FDP limits in single pilot operations, across Appendices 4, 4B, 5A, and 6, would be beneficial for operators seeking to better understand the FDP limits.” (p. 33)

International comparisons and a comparison of FDP limits between appendices

Table 4 from the fatigue review final report provides a more detailed examination of the comparative analysis of CAO 48.1 against counterpart international regulators.

In Table 4, the international average is highlighted in yellow. Where the CASA limits differ by *one hour or more* from the average international limit, that difference has been colour coded according to whether the CASA limit was higher (shown in green) or lower (shown in blue) than the averaged international limit.

Download Table 4 – CAO 48.1 International Comparisons (for two pilot acclimatised FDPs) [<user_uploads/table_-4-casa_independent_fatigue_review_final-report_20mar18-1.pdf>](user_uploads/table_-4-casa_independent_fatigue_review_final-report_20mar18-1.pdf)

Table 5 from the fatigue review final report provides an overall summary of flight duty period (FDP) (and in some cases flight time) limits, across the CAO 48.1 Appendices. Table 5 also includes the international comparison of two pilot, acclimatised, Appendix 2 FDP limits from Table 4 along with some illustrative examples of how Appendix 2 could be amended, should CASA choose to adopt limits that more closely reflect international averages.

Download Table 5 – Comparison of FDP Limits Between Appendices [<user_uploads/table_5_casa_independent_fatigue_review_final-report_20mar18.pdf>](user_uploads/table_5_casa_independent_fatigue_review_final-report_20mar18.pdf)

Recommendation 3: That, notwithstanding any challenges the Australian operating environment may present, CASA adopts prescriptive FDP limits that are more closely aligned with international averages for similar types of operation.

Are there any issues you would like CASA to consider in responding to Recommendation 3 (such as unintended consequences, costs or suggested approaches)?

Please provide details below:

Recommendation 7

Independent review findings related to Recommendation 7

“The Review Team finds that there are complications associated with switching between Appendices, particularly where operators choose to utilise an FRMS but still operate within an Appendix as well. Complications include both human (e.g., making rules clear for FCMs to comply with) and technical (e.g., customising rostering software to allow for maintenance of compliance to multiple rule sets simultaneously).

If Recommendation 2 is accepted, and some limited dispensations are allowed under specific circumstances, through a standardised approval process, then the complexities of switching between Appendices are likely to be simplified for some operators. Nonetheless, any allowances given by CASA to provide limited dispensations should be applied judiciously and it is likely that some operators will still decide or need to switch between Appendices. In that case, the following Recommendation remains a relevant consideration.” (p. 40)

Current rules for operating under multiple appendices

Detail from the current rules (CAO 48.1 Instrument 2013, incorporating the 2016 amendments):

13 Operations under multiple appendices

13.1 If, under paragraph 10.1, 2 or more Appendices apply to a single FDP of an FCM, the following rules apply for an operation undertaken at any particular time in the FDP:

(a) the maximum FDP that an AOC holder and an FCM must comply with is the FDP limit contained in the Appendix under which the operation is being conducted at that particular time;

(b) the maximum flight time that an AOC holder and an FCM must comply with is the flight time limit contained in the Appendix under which the operation is being conducted at that particular time.

13.2 In determining the maximum FDP and flight time under paragraph 13.1, the limit determined from each Appendix must be based on the time of commencement of the FDP, and not on the time of commencement of operations under each Appendix.

13.3 At any particular time in an FDP, the AOC holder and FCM must each ensure that the FCM remains within the cumulative duty and cumulative flight time limits for the Appendix under which the operation is being conducted at that particular time.

13.4 Where operations under 2 or more Appendices are undertaken in a single FDP, the minimum off-duty period that the AOC holder and FCM must comply with following the FDP is that contained in the Appendix with the highest off-duty period as if the entire FDP was performed under that Appendix.

13.5 An AOC holder and an FCM must comply with the off-duty period requirements of the Appendix determined under paragraph 13.4 before the FCM commences another FDP.

13A Transitioning from Appendix 4B, 5 or 5A — days off-duty

13A.1 An FCM, transitioning from the application of Appendix 4B, 5 or 5A to his or her last FDP or standby, to the application of another Appendix (other than 4B, 5 or 5A) to his or her next FDP or standby, must have had either:

(a) before commencing the next FDP or standby under the other Appendix, at least:

(i) 7 days off-duty in the previous 28 consecutive days; and

(ii) 24 days off-duty in the previous 84 consecutive days; or

(b) immediately before commencing the next FDP or standby under the other Appendix, at least:

(i) the number of days off-duty still outstanding to comply with sub-subparagraph (a) (i); and

(ii) half the number of days off-duty still outstanding to comply with sub-subparagraph (a) (ii) (rounded to the nearest whole number).

13A.2 For subparagraph 13A.1 (b), the number of days calculated under sub-subparagraph (ii) may also contribute to the FCM's compliance with sub-subparagraph (i).

13A.3 An FCM who meets the requirements in subparagraph 13A.1 (b) is taken to meet the off-duty requirements of the following paragraphs for 28 consecutive days from commencement of the first FDP or standby under the other Appendix:

(a) 10.6 (b) of Appendix 2;

(b) 8.6 (b) of Appendix 3;

(c) 8.5 (b) of Appendix 4;

(d) 7.3 (b) of Appendix 6.

15.2 The AOC holder must set out the following in the operations manual:

(d) where the AOC holder undertakes operations under multiple Appendices — procedures to ensure that transitions between the different limits of the Appendices:

(i) are undertaken in accordance with subsections 13 and 13A; and

(ii) do not adversely affect aviation safety

Recommendation 7: That CASA considers limiting an operator's ability to switch between Appendices during a single FDP. Where multiple types of operations that would fall under different Appendices are required to be undertaken during a single FDP, the more restrictive limits should apply.

Are there any issues you would like CASA to consider in responding to Recommendation 7 (such as unintended consequences, costs or suggested approaches)?

Please provide details below:

Recommendation 8

Independent review findings related to Recommendation 8

“The Review Team finds that the prescriptive limits applying to aerial application operations within CAO 48.1 are more restrictive than existing arrangements under CAO 48.0 and current exemptions. Other comparable international regulators have recognised that public risk from these types of operations is relatively limited, and have elected to defer or remove restrictive fatigue management limits. Given the sector risk profile (Civil Aviation Safety Authority, 2014c) the Review Team believes that inclusion of aerial application operations within CAO 48.1 may not be warranted. Exclusion would be consistent with the findings of the 2014 Aviation Safety Regulation Review Panel (Australian Government, 2014) regarding adjusting the level of safety oversight so that it is proportional and appropriate to the scope and risk of sector operations.” (p. 41)

Note: CASA Exemption EX 92/16

<<https://www.legislation.gov.au/Details/F2016L01044>> permits aerial application to continue flying to the limits in CASR sub part 137.Q until 31 May 2019 subject to the conditions identified in the instrument.

Recommendation 8: That CASA considers removing Part 137 aerial application operations from CAO 48.1 due to the sector’s lower relative risk exposures. If it is deemed necessary to include restrictions for aerial application operators in CAO 48.1 then CASA should consider increasing the flexibility of the relevant CAO 48.1 limits to align them with the current provisions of Subpart 137.Q.

Are there any issues you would like CASA to consider in responding to Recommendation 8 (such as unintended consequences, costs or suggested approaches)?

Please provide details below:

Recommendation 9

Independent review findings related to Recommendation 9

“The Review Team finds that the requirement for operators to make allowance for individual circumstances of FCMs is inappropriate and impractical for several reasons. These include the fact that it is unreasonable to hold operators accountable for crew lifestyle factors and circumstances outside of their control and on which they are unable to collect or monitor any data. The need for flight crew members to present themselves for work fully fit for duty, and to notify the operator and remove themselves from duty at any time if they consider they are not fit, remains a critical component of any holistic fatigue management process.” (p. 42)

Current rules for flight crew and operator obligations

Detail from the current rules (CAO 48.1 Instrument 2013, incorporating the 2016 amendments):

16 Flight crew member obligations

16.1 It is a condition on each flight crew licence that the licence holder must not operate an aircraft if, considering the circumstances of the flight to be undertaken, a reasonable person in the FCM's position would consider that he or she is suffering from, or is likely to suffer from, fatigue which may so impair performance that the safety of the operation may be affected.

Note 1 An FCM employed by an AOC holder should utilise off-duty periods and adaptation periods to obtain an amount of sleep sufficient to support the appropriate and safe discharge of duties during his or her next rostered FDP or standby. This should involve a careful and responsible evaluation of the FCM's personal circumstances, including, for example, the implications of secondary employment, long-distance travel, and exposure to stress or illness.

Note 2 An FCM employed by an AOC holder in an augmented crew operation should utilise in-flight rest opportunities to adequately manage their alertness for the remaining portion of the FDP.

16.2 Subject to paragraph 16.3, it is a condition on each flight crew licence that an FCM employed by an AOC holder must, before or during any FDP (as the case requires), inform the AOC holder of any **adverse matter**.

16.2A For paragraph 16.2, an adverse matter means any matter that a reasonable person in the FCM's position would consider likely to adversely affect his or her ability to meet:

- (a) the AOC holder's fatigue risk management policies; or
- (b) the limits and requirements of the Appendix or Appendices that the holder has chosen to apply to the FCM; and

includes the matters mentioned in paragraph 16.2B.

16.2B Matters that may be adverse matters include the following:

- (a) insufficient sleep during sleep opportunities before an FDP commences;

(b) secondary employment engaged in by the FCM;

(c) the FCM living a long distance from base or otherwise having to travel a long distance to report for duty;

(d) any other matter affecting the FCM or connected with the FDP.

16.3 Paragraph 16.2 does not require the repetition of anything which the FCM has previously disclosed to the AOC holder as a continuing state of affairs.

Note Guidance for individuals on these obligations is contained in CAAP 48-1.

Current guidance on flight crew and operator obligations

Current guidance flight crew member (FCM) and operator obligations (from CAAP 48.1)

5.2.7 FCMs have an obligation to disclose, to their operator(s), anything affecting the FCM or connected with the FDP, which they have reason to believe, may affect their ability to meet the operator's fatigue risk management policies or limitations.

Examples of such factors include:

- their living arrangements
- external employment
- private flying any other factor which may compromise their alertness during duty.

5.2.8 These factors should be considered in the same light as general operational-specific hazards. For example, where certain FCMs disclose that they live a long distance away from their home base, the additional time spent commuting to work is a hazard that could adversely affect their alertness towards the end of their duty, due to their increased hours of sustained wakefulness.

7 Individual obligations – disclosure to an operator

7.1 Living arrangements – distance from base

7.1.1 FCMs should consider how their living arrangements and travel time to work may affect their fatigue levels. Any potentially problematic conditions need to be disclosed to the operator if it is having, or is likely to have, an impact on operational performance.

7.1.2 As an FCM's living arrangements change throughout their lifespan, these changes should also be considered in the context of whether it may have an impact on fatigue levels and subsequent operational performance. For example, living situations that may have a resulting impact on a person's fatigue levels include:

- having shared or alternating living locations
- long and variable commute times (e.g. due to distance and traffic congestion)
- personal and work-related relocation decisions
- noisy living environments/disruptions to home resting areas (e.g. council/road works, neighbourhood construction/renovations, care requirements for babies/children, traffic noise, non-soundproof walls)

- overly well-lit living environments/resting areas (e.g. bright city lighting, inadequate light coverings during allocated daytime rest periods).

7.1.3 FCMs may find that certain unique living situations can improve alertness and minimise the risk of fatigue. In some instances, it may be beneficial to live further away from a departure base, rather than closer. An example is where the departure base is continually noisy or overly lit during sleep/rest periods or night time. FCMs should give sufficient contextual consideration to their living arrangements and changes to their living arrangements in relation to any impact it may have on fatigue. If potentially problematic situations arise, this needs to be disclosed to the operator.

7.2 External employment and other tasks

7.2.1 FCMs have an obligation to manage any external employment activities to ensure that they do not impact on their fatigue levels during operations. External activities such as:

- home duties
- leisure duties
- family duties
- volunteering work conducted outside of work hours.

7.2.2 With external employment and other tasks, the employee should consider any potentially adverse effects on operational safety from a fatigue perspective and disclose any potentially problematic situations to the operator. Examples of external tasks which may affect fatigue levels include:

- night flying work
- shift work
- running a business
- child minding responsibilities
- physically labouring tasks
- study/education
- driving.

Recommendation 9: That CASA removes the requirement for operators to make allowance for individual circumstances when assigning work, given the existing requirement for flight crew members to commence flight duty periods fit for duty, and notify the company if they consider themselves unfit for duty at any time.

Are there any issues you would like CASA to consider in responding to Recommendation 9 (such as unintended consequences, costs or suggested approaches)?

Please provide details below:

Recommendation 12

Independent review findings related to Recommendation 12

“CAO 48.1 Appendix 2 (Section 7) allows for duty reassignment and an FDP extension, once an assigned FDP has commenced, of up to 4 hours, regardless of the original FDP duration. This could limit an extension of a short FDP of say 2 hours, to just 6 hours, which has minimal fatigue implications for fully rested FCMs. By contrast, other international regulators have a less restrictive approach. EASA for example will allow extensions based on the time of FDP commencement time and the number of sectors, up to a maximum of 14 hours for day duties of 1-2 sectors. They do impose restrictions on night duties or multiple sector duties, which may prevent any extension in some cases. The FAA recognises the need for FDP extensions and explicitly states that “it is unreasonable to limit extensions on FDP’s that are less than what the certificate holder can legally schedule” (Federal Aviation Administration, 2013). This is a less conservative approach than used in EASA, especially when worst-case scenarios are considered.” (p. 43)

Current rules and guidance for reassignment and extension

Detail from the current rules (Appendix 2 of CAO 48.1 Instrument 2013, incorporating the 2016 amendments):

7 Reassignment and extension

7.1 After an FCM's assigned FDP commences, the AOC holder may reassign to the FCM a modified FDP and number of sectors to be flown, provided that each of the following applies:

- (a) the modified FDP must not be more than 4 hours longer than the assigned FDP;
- (b) subject to subclauses 7.3 and 7.4 — the modified FDP and flight time must not exceed the limits in the holder's operations manual for the new number of sectors;
- (c) the FCM, or each FCM, must consider himself or herself fit for the modified FDP.

7.2 If subclause 7.1 applies, the FCM may continue in the modified FDP in accordance with subclause 7.1.

Note Clause 13 applies to the reassignment of an FDP which results in the modified FDP being a late night operation.

Current guidance in CAAP 48.1 - reassignment (multiple appendices):

Reassignment

C.6.1.1 These provisions set limits on the extent to which a rostered or assigned FDP can be modified for an FCM once the FDP has commenced. Reassigning refers to increasing an FDP while remaining within the operations manual limit for that activity. This is different to an extension, which refers to increasing the FDP so that it exceeds the FDP limit in the operations manual. A re-assigned FDP can subsequently be extended under the extension clause once unforeseen operational circumstances are encountered.

C.6.1.2 There may be occasions when an FCM who has already commenced an FDP needs to be reassigned (e.g. when operational requirements require an FCM to take over another's rostered sectors). There are restrictions over how reassignments are managed in order to mitigate any adverse fatigue risks associated with changing the FCM's duty expectations.

Recommendation 12: CASA amends the Appendix 2 four-hour FDP extension limit to one which better reflects international standards for similar operations. An extension to FDP in accordance with sector number and time of day limitations, similar to the EASA limits, would be a more appropriate method of balancing operational flexibility with fatigue mitigation.

Are there any issues you would like CASA to consider in responding to Recommendation 12 (such as unintended consequences, costs or suggested approaches)?

Please provide details below:

Fatigue Risk Management Systems (FRMS)

The independent review made six recommendations relating to **Fatigue Risk Management Systems** - Recommendations 4, 5, 16, 22, 23, and 24.

Please comment on these recommendations below.

Recommendation 4

Independent review findings related to Recommendation 4

“The Review Team finds that the requirements of CAO 48.1 Appendix 7 are oriented strongly towards larger RPT operators and therefore have significant ‘economy of scale’ implications for smaller non-RPT operators, who may nonetheless have much to gain in potential safety benefits from implementing an FRMS as the best means of managing their fatigue-related risks. There is significant overlap between SMS and FRMS elements and processes, and requiring two separate programs which are then integrated, involves unnecessary duplication and resource requirements, especially for small operators.

Different types of operations may reasonably be associated with different target levels in safety performance, in relation to fatigue induced risk management. From a risk-based point of view there is merit in determining the needs for fatigue risk management among the high consequence sectors of the industry. However, if the complexity and resources required for implementing and managing FRMS in large-scale international operations are driven down to become mandatory requirements for all industry segments for which FRMS is suitable, then FRMS may unintentionally become a distraction and possibly even a risk consideration for smaller operators without the scaling down of requirements.

It is recommended that the criteria proposed to distinguish CASR Part 121 ‘large aeroplane’ operators (more than 9 passenger seats / MTOW exceeding 8,618 kg) could be applied to determine eligibility for Tier 1 and Tier 2 FRMS requirements, with Tier 1 requirements to apply to any CASR Part 121 passenger or cargo transport operator.” (p. 37)

Recommendation 4: That CASA creates at least two risk-based tiers of FRMS requirements (to be reflected in FRMS application/assessment materials such as Form 817), with the highest level of FRMS requirements to be applied to Part 121 passenger and cargo transport operations.

Are there any issues you would like CASA to consider in responding to Recommendation 4 (such as unintended consequences, costs or suggested approaches)?

Please provide details below:

Recommendation 5

Independent review findings related to Recommendation 5

“While CAO 48.1 Appendix 7 is closely aligned with ICAO requirements (International Civil Aviation Organisation, 2013, 2016) the Review Team concurs that Appendix 7 presents as a highly prescriptive approach to the specification of requirements. Given that many operators are already required to manage fatigue-related risk under their safety management system (SMS), using an outcomes-based risk management approach, the high level of prescription appears unwarranted. The overarching goal of each FRMS is to mitigate the risk to flight safety imposed by fatigue. To have overly prescriptive rules for such a wide range of activities within Australian aviation operations could be both counterproductive, and unnecessary.” (p. 38)

Recommendation 5: That CASA reduces the level of prescription in CAO 48.1 Appendix 7 to align more closely with an outcomes-based regulatory philosophy.

Are there any issues you would like CASA to consider in responding to Recommendation 5 (such as unintended consequences, costs or suggested approaches)?

Please provide details below:

Recommendation 16

Independent review findings related to Recommendation 16

“The Review Team finds that the threat of regional variation to the standardised evaluation and oversight of FRMS applications is evident and believes that centralisation of these processes would assist in standardising information content and harmonising FRMS evaluation and oversight processes to mitigate this threat.” (p. 48)

Recommendation 16: That CASA establishes a single point of contact for industry seeking advice on FRMS, to ensure that accurate, timely, complete and consistent information is provided. To accomplish this, CASA should consider the creation of a centralised (perhaps ‘virtual’) cell of fatigue management and FRMS expertise to ensure standardisation of the evaluation of applications for FRMS and the subsequent calibration and standardisation of FRMS oversight.

Are there any issues you would like CASA to consider in responding to Recommendation 16 (such as unintended consequences, costs or suggested approaches)?

Please provide details below:

Recommendation 22

Independent review findings related to Recommendation 22

“The Independent Review Team has identified that CASA does not currently possess the capability required to effectively and concurrently evaluate and oversee a large number of operators transitioning to FRMS. This situation could be eased somewhat by introducing initiatives noted in this report, such as staggered implementation and reducing some of the Appendix 7 application requirements for smaller operators.

However, there are still resource shortfalls that need to be addressed by initiating action to acquire and/or develop additional fatigue management / FRMS resources. These resources could include additions to and/or the development of existing CASA staff with the objective of enhancing FRMS knowledge and capability. In addition, there is a need to invest in improving the package of templates and resources available for industry, CASA FRMS application reviewers and other critical stakeholders.

For example, as noted above, there is a need for at least two versions of the current Form 817, to allow smaller operators to build a system appropriate and relevant to their risk profile and operational circumstances. In addition, a standardised set of templates, procedures and communications/reports need to be built to support anyone involved in industry-facing roles related to reviewing FRMS applications. Once all the required resources are in place there is also a need to train internal staff so that their roles can be completed in a way that is consistent with the legislation and documentation, and, very importantly, consistent with each other. Some of the resources needed could be hired or contracted in, such as for building templates and conducting training. Other resources, such as suitably skilled reviewers for FRMS applications, will be required longer-term.” (p. 52)

Recommendation 22: That CASA initiates action to acquire and / or develop a significantly increased capability for FRMS evaluation and oversight. This action should be linked with the development of clear system / documentation outcomes, including timelines, and determining the particular skills required.

Are there any issues you would like CASA to consider in responding to Recommendation 22 (such as unintended consequences, costs or suggested approaches)?

Please provide details below:

Recommendation 23

Independent review findings related to Recommendation 23

“The Review Team finds that CASA does not currently, and may not in future, have the resources to be able to expeditiously evaluate every change to each operator’s FRMS. Mature FRMS operators have a goal to continuously improve their FRMS, using data-driven approaches, and CASA’s requirements as referenced above appear to again represent a highly prescriptive approach, which may impede the efficient conduct and improvement of an FRMS.” (p. 53)

Current rules for FRMS change management procedures

Detail from the current rules (Appendix 7 of CAO 48.1 Instrument 2013, incorporating the 2016 amendments):

7 FRMS change management procedures

7.1 The FRMS change management procedures must:

- (a) meet the requirements of this clause; and
- (b) clearly indicate how the AOC holder will amend, change or modify any element of the FRMS consistently with the requirements of this clause.

7.2 The change management procedures set out in this clause apply to:

- (a) an AOC holder with a trial FRMS implementation approval; and
- (b) an AOC holder with a full FRMS implementation approval.

7.3 After issuing an FRMS implementation approval, CASA may, in writing, direct an AOC holder to amend, change or modify the FRMS (including practices and documents), and the AOC holder must comply within the time specified by CASA in the direction.

Note 1 A failure to comply may result in revocation of the FRMS implementation approval.

Note 2 CASA's power to direct changes to an FRMS is an emergency power for safety purposes only. It does not relieve any approval holder of their own obligation to improve the performance of their FRMS where this is safe and practicable under subclause 7.4.

7.4 Subject to subclause 7.5, the AOC holder must obtain the written permission of CASA before the holder amends, changes or modifies, in practice or in writing, any element of the FRMS mentioned in subclause 1.2 as approved by CASA.

7.5 Subclause 7.4 does not apply to the following:

- (a) any decrease in the values required under paragraph 3.2 (a);
- (b) any increase in the values required under paragraph 3.2 (b);

(c) any other change to the written statement of, or the practices associated with, any element of the FRMS (other than the FRMS change management process) which:

(i) is intended to deliver higher safety outcomes (including through clarification in the way any element of the FRMS is expressed); and

(ii) has been assessed and approved, in accordance with the procedures mentioned in paragraph 7.1 (b), as likely to deliver quantifiably higher safety outcomes; and

(iii) would be considered by a reasonable AOC holder, committed to excellence in the management and control of fatigue-related risks, as likely to result in higher safety outcomes when compared to the element as approved by CASA;

(d) any change in the names of individuals with roles and responsibilities under the FRMS;

(e) the correction of minor typographical errors.

7.6 To avoid doubt, the AOC holder must not amend, change or modify any of the following:

(a) any requirement that an FRMS must meet to comply with this Appendix;

(b) the FRMS change management process approved by CASA;

(c) anything in an element of the FRMS as approved by CASA which a reasonable AOC holder, committed to excellence in the management and control of fatigue-related risks, would regard as likely to result, at any time, in a lowering or diminishing of safety outcomes when compared to the element as approved by CASA.

7.7 A change to any element of the FRMS as approved by CASA and mentioned in paragraph 7.5 (a), (b) or (c) must be:

(a) recommended in writing by the FRMS Manager; and

(b) endorsed in writing by the Chief Executive Officer; and

(c) notified in writing to CASA within 7 days of the endorsement mentioned in paragraph (b).

7.8 A change to any element of the FRMS as approved by CASA and mentioned in paragraph 7.5 (d) or (e) must be:

(a) recommended in writing by the FRMS Manager; and

(b) notified in writing to CASA within 7 days of the recommendation mentioned in paragraph (a).

Recommendation 23: That CASA reviews the content and language used in CAO 48.1, Appendix 7, Section 7 to ensure that it allows operators sufficient autonomy to be able to manage and improve their FRMS efficiently.

Are there any issues you would like CASA to consider in responding to Recommendation 23 (such as unintended consequences, costs or suggested approaches)?

Please provide details below:

Recommendation 24

Independent review findings related to Recommendation 24

“The Review Team finds that CASA needs to improve the consistency and transparency of FRMS assessment processes. This item relates to previous statements suggesting only requirements should be stated as such in regulations, and that only regulations should be associated with the use of imperative terms such as ‘must’, ‘shall’ and ‘required’ in guidelines, Form 817 and other supporting documents. Where multiple alternate means of compliance exist, the requirement should be related to compliance, with clear visibility that alternatives exist. Similarly, this item relates to scalability, which is associated with the content in this report suggesting one (or more) additional layers of scale is necessary (e.g., in Form 817) to provide visibility of differences in requirements for larger versus smaller operators.” (p. 53)

CASA Fatigue Risk Management System (FRMS) resources

A range of resources are on the **CASA website** <<https://www.casa.gov.au/safety-management/standard-page/fatigue-management-resources>> to assist operators with implementing a fatigue risk management system (FRMS) including:

Fatigue Risk Management Systems (FRMS) booklet

<<https://www.casa.gov.au/files/frmsbooklet2016pdf>> - provides an overview of fatigue risk management systems to help organisations in deciding which fatigue appendix/ices best suit their operation.

Fatigue risk management system process manual

<<https://www.casa.gov.au/files/frmsprocesspdf>> - outlines the entry control requirements for processing your FRMS application. It should be used in conjunction with the Fatigue risk management system handbook (below).

Fatigue risk management system handbook

<<https://www.casa.gov.au/files/frmspdf>> - will tell you about our approval process and also supports the fatigue risk management - system process manual.

FRMS checklist - Form 817 FRMS progress monitoring tool for operators

<<https://www.casa.gov.au/files/form817xlsx>> - a joint industry and CASA checklist to track your progress during the development of an FRMS.

Recommendation 24: That CASA provides clear and comprehensive information to operators and flight operations inspectors on the FRMS assessment process, including differences between requirements and guidelines at different levels of operational scale.

Are there any issues you would like CASA to consider in responding to Recommendation 24 (such as unintended consequences, costs or suggested approaches)?

Please provide details below:

Communication, guidance and support

The independent review made six recommendations relating to **communication, guidance and support** - Recommendations 6, 10, 11, 13, 17, and 18.

Please comment on these recommendations below.

Recommendation 6

Independent review findings related to Recommendation 6

“Some of the language used throughout CAO 48.1, including Appendix 7, and associated guidance documentation (e.g., an operator ‘must’, ‘shall’ and ‘is required to’), blurs the line between legal requirements and what might be acceptable alternate means of compliance (AMOC) for an operator. This applies to the CAO 48.1 Instrument and associated supporting documentation, including the CAAP 48-01 (Civil Aviation Safety Authority, 2017d), which is intended to provide guidance to operators, and the CASA FRMS Handbook (Civil Aviation Safety Authority, 2013c), which is intended to provide guidance for CASA officers. This is likely to create unnecessary confusion, complexity, and potentially conflict, in CAO 48.1 implementation and audit processes.

Regulatory requirements should be clearly stated using imperative terms such as ‘must’, ‘shall’ and ‘required’. Where it is appropriate to repeat regulatory requirements in supporting documentation (e.g. Form 817), imperative terms can again be used. However, guidance material contained in supporting documents must be clearly distinguished from requirements, and indicated as such by the use of non-imperative terms. The Review Team also finds the wording used in parts of CAO 48.1 and CAAP 48-1 subjective and therefore ambiguous and unhelpful in establishing standards.” (p. 39)

Examples of current CASA supporting documentation

Civil Aviation Advisory Publication (CAAP) 48-01 - Fatigue management for flight crew members <<https://www.casa.gov.au/files/481pdf>> - provides guidance on meeting the operator and flight crew member obligations required under CAO 48.1 Instrument 2013 (as amended by the 2016 improvements).

Fatigue Risk Management Systems (FRMS) booklet

<<https://www.casa.gov.au/files/frmsbooklet2016pdf>> - provides an overview of fatigue risk management systems to help organisations in deciding which fatigue appendix/ices best suit their operation.

Fatigue risk management system process manual

<<https://www.casa.gov.au/files/frmsprocesspdf>> - outlines the entry control requirements for processing your FRMS application. It should be used in conjunction with the Fatigue risk management system handbook (below).

Fatigue risk management system handbook

<<https://www.casa.gov.au/files/frmspdf>> - will tell you about our approval process and also supports the fatigue risk management system process manual.

FRMS checklist - Form 817 FRMS progress monitoring tool for operators

<<https://www.casa.gov.au/files/form817xlsx>> - a joint industry and CASA checklist to track your progress during the development of an FRMS.

Recommendation 6: That CASA modifies the tone and language used in CAO 48.1 and all supporting documentation to clearly distinguish between legal requirements and guidelines on acceptable means of compliance.

Are there any issues you would like CASA to consider in responding to Recommendation 6?

Please provide details below:

Recommendation 10

Independent review findings related to Recommendation 10

“The Review Team finds that there is an opportunity to better integrate the requirements for Fatigue Management training and NTS training for tier 2 and tier 3 operators.” (p. 42)

Current rules for training (appendices 2-6)

Detail from the current rules (CAO 48.1 Instrument 2013, incorporating the 2016 amendments):

Training

15.3 Subject to subsection 15A, the AOC holder must, as a minimum:

- (a) make available, and require each FCM to undertake, initial and recurrent fatigue-related risk training relevant to the FCM's duties in operations under the AOC; and
- (b) at the end of the initial training, and at the end each occasion of recurrent training — assess the FCM's knowledge and learning from the training.

Note The training required by this paragraph may be incorporated into existing training programs.

15.4 Initial training under paragraph 15.3:

- (a) for an FCM who becomes an AOC holder's employee after this Order takes effect for the holder — must occur within 6 months of the person commencing the employment; and
- (b) for an FCM who was the AOC holder's employee on the date this Order takes effect for the holder — must occur within 6 months of the Order taking effect.

15.5 Initial training under paragraph 15.3 must:

- (a) be in accordance with a syllabus; and
- (b) deliver a thorough knowledge and understanding of the following:
 - (i) fatigue causes;
 - (ii) fatigue-related impairment;
 - (iii) the management of risks associated with fatigue;
 - (iv) the AOC holder's fatigue risk management obligations and procedures under the operations manual and this Order; and
- (c) equip each FCM with the ability to comply with his or her obligations under this Order in operations for the AOC holder.

15.6 Recurrent training must occur at appropriate intervals and:

- (a) be in accordance with a syllabus; and
- (b) revise the knowledge and understanding acquired under paragraph 15.5; and
- (c) deliver a thorough knowledge and understanding of any changes in the AOC holder's operating practices, or fatigue risk management obligations and procedures, that have occurred since initial training or the preceding recurrent training (as the case may be).

15.7 Subject to subsection 15A, an FCM must:

- (a) attend the initial and each recurrent training mentioned in paragraph 15.3; and
- (b) at the end of each training, successfully complete an assessment of learning from the training; and
- (c) satisfy the AOC holder that he or she has sufficient knowledge of, and competence in managing, the fatigue-related risks relevant to his or her duties as an FCM.

15.8 The AOC holder must maintain for each FCM records of training and assessment completed under this subsection.

15.9 Each record mentioned in paragraph 15.8 must be securely retained from the date the record was made until at least 12 months after the FCM ceases to be employed by the AOC holder.

Note Guidance for AOC holders on these additional obligations is contained in CAAP 48-1.

Current guidance on fatigue training

Detail from CAAP 48-1:

5.6 Fatigue Training

5.6.1 Operators need to conduct fatigue training and assessment. To meet their obligations, operators should:

- allocate adequate resources for fatigue training (including trainers, materials and time)
- accept that the benefits of fatigue training will not be realised without ongoing investment and effort.

5.6.2 There are three main subject areas which form the substance of a typical fatigue training program (fatigue, sleep and countermeasures). The following is a list of topics that could be included in these subject areas:

Fatigue:

- types of fatigue
- contributors to fatigue
- consequences of fatigue on safety
- fatigue in accidents
- high risk situations

Sleep:

- sleep physiology
- circadian body clock
- the sleep process
- amount of sleep required
- sleep debt and recovery
- quality of sleep
- sleep disorders and individual differences
- shift work
- jet lag

Countermeasures:

- managing sleep habits
- tailoring the sleep environment

- napping
- exercise
- nutrition and hydration
- caffeine
- avoidance of alcohol before bed
- use of sleep aids
- avoidance of nicotine
- keeping a sleep log.

5.6.3 In addition to these generic fatigue management topics, operators should tailor their training programs to include relevant topics for their own operation. For example, during training, FCMs should be made aware of the operator's operations manual procedures, limits and operator and individual obligations.

5.6.4 Training must be conducted on an initial and recurrent basis. The interval between training should be determined by the operator, given their operational characteristics and training needs analysis. A training interval of not more than three years is recommended; however, where an operator identifies a need for training at closer intervals, this should be acted on.

5.6.5 The training required by CAO 48.1 may be integrated with other training conducted by an operator (i.e. human factors/non-technical skills training).

5.6.6 Fatigue training must be assessed with the level of training determining the level of assessment required.

5.6.7 A primary goal of assessment is to determine to what extent those participating in the training program are learning. Different phases of training (awareness, knowledge and skills) will entail different forms of assessment. Assessment techniques for awareness and knowledge phases of training programs are well founded.

5.6.8 Another goal of assessment is to act as a feedback mechanism to permit adaptive changes to training content and methods of instruction. The diagnostic use of assessment to provide feedback to instructors and students during a program of instruction is known as formative assessment.

5.6.9 The other main form of assessment (referred to as summative assessment) traditionally uses a behavioural test or written paper after a specified period of training to enable judgements about what level of learning has occurred.

5.6.10 Both formative and summative assessment can be used to make adjustments to the practise and design of training (i.e. reteaching, implementing alternative instructional approaches, and adding extra opportunities for practice).

5.6.11 Assessment criteria should be drawn from the initial training needs analysis. Training personnel are encouraged to use their experience to develop assessment criteria tailored to their particular operation. CASA has published a Fatigue Management Toolkit on its website that includes material that may be useful in developing and facilitating a fatigue management training course. (Refer to the list of references in section 1.3 of this CAAP).

Related guidance material:

Download CAAP SMS 3(1) <<https://www.casa.gov.au/files/sms-3-1pdf>> Non-Technical Skills Training and Assessment for Regular Public Transport Operations

Recommendation 10: That CASA amends CAAP SMS-3(1) to link the content of NTS fatigue management training to the content required for operators under CAO 48.1. This would streamline and align fatigue management and NTS training program outcomes.

Are there any issues you would like CASA to consider in responding to Recommendation 10?

Please provide details below:

Recommendation 11

Independent review findings related to Recommendation 11

“The Review Team finds that the 14-day minimum period between publishing of rosters and roster commencement provided in CAAP 48-1, is unrealistic for real world airline and non-airline, operations.” (p. 43)

Current guidance on publishing rosters

Detail from CAAP 48-1:

4.6 Publishing of rosters

4.6.1 Publishing duty rosters allows FCMs to plan adequate rest before their next assigned duty. Operators should be aware that their FCMs will require some degree of certainty in organising their work/life balance and, more importantly from a fatigue management point-of-view, organising sleep.

4.6.2 It is important that operators publish the roster sufficiently in advance of the flights covered by the roster to allow the FCMs to organise their work/life balance, adequate sleep, and other aspects of personal life. Rosters should also be published with a consistent lead time that is communicated to all FCMs.

4.6.3 As a guide, the minimum notification period should be between 14 and 30 days when an FCM is rostered for FDPs that:

- involve augmented crew operations;
- cross two or more time zones;
- include two or more late night operations; or
- include split-duty rest periods.

4.6.4 For *ad hoc* operations, particularly those where FCMs are employed on a casual basis, there may be little opportunity to provide notice of an upcoming FDP. Unless the FDP is going to be quite short, an operator should have in place procedures that involve offering an available FDP to a casual FCM at least the day before it is to take place. These procedures should therefore allow the casual FCM, prior to accepting the FDP, to consider their fitness for duty and whether or not they will be able to ensure adequate rest prior to it. As a guide, for an FDP to be considered quite short it would not exceed 50% of the FDP limit for the applicable start time. In addition, if there is any increase to the FDP limit via the use of augmented crew or a split-duty rest period then the notification period need to be increased appropriately.

4.6.5 Whilst late changes to rosters are understandable, it is important that these changes are kept to a minimum. It is necessary to have procedures in place so that any fatigue risk resulting from the effects of late roster changes is managed. This is

particularly important for augmented crew operations and the subsequent in-flight rest planning.

Recommendation 11: That CASA amends CAAP 48-1 to reflect a more realistic publishing requirement for flight crew rosters. This could be achieved by reducing the guidance to a more realistic period, such as 7-10 days, noting that any other requirements included in current industrial agreements would still apply.

Are there any issues you would like CASA to consider in responding to Recommendation 11?

Please provide details below:

Recommendation 13

Independent review findings related to Recommendation 13

“Email and other industry submissions on CASA publications (NPRM, NRFM, CD’s etc.) were not always provided to the Review Team in an organised or helpful way. Different emails were saved under the same file name, making it difficult to track and trace these communications from *Independent Review of Fatigue Rules* March 2018 Final Report Page 47 of 81 industry stakeholders. Attached documents were not re-saved with file names identifying the subject, date or author / organisation. Simple changes to the process for accepting and naming such documents would reduce the risk that emails are lost or duplicated, the content neglected, or an appropriate response not provided.

CASA’s internal processes for dealing with multiple iterations of industry feedback did not always provide a transparent link between the comments submitted and the changes subsequently made to CAO 48.1. Initially, CASA managed and responded to industry feedback on NPRM 2012OS in a structured, comprehensive and transparent way. The outcome of industry submissions received by CASA on two CAO 48.1 Consultation Drafts (August 2015 and March 2016) was not transparent or traceable however, due to the absence of documentation showing how, or in fact whether, this feedback was considered, responded to and/or translated into subsequent amendments.

Even though the feedback management process may have been put on hold when the Independent Fatigue Review was commissioned, this intervention would not appear to absolve CASA of its responsibility to acknowledge submissions from industry and explain why a formal response may be delayed.” (pp. 46-47)

Useful links: CASA consultation documents

Consultation Draft (CD 1510OS-2) <<https://www.casa.gov.au/rules-and-regulations/standard-page/cd-1510os-2-improvements-new-rules-fatigue-management-flight>> - Improvements to the new rules for fatigue management for flight crew members (published 2016)

Consultation Draft (CD 1510OS) <<https://www.casa.gov.au/regulations-and-policy/standard-page/cd-1510os-%E2%80%93-civil-aviation-order-481-amendment-instrument-2015>> – Civil Aviation Order 48.1 Amendment Instrument 2015 (No.1) (published 2015)

Notice of Final Rule Making (NFRM 1202OS) <<https://www.casa.gov.au/standard-page/nfrm-1202os>> – Fatigue Management for Flight Crew Members – Amendment to CAO Part 48 (published April 2013)

Notice of Proposed Rule Making (NPRM 1202OS) <<https://www.casa.gov.au/standard-page/nprm-1202os>> - Fatigue Management for Flight Crew Members – Proposal to update Civil Aviation Order (CAO) Part 48 (published May 2012)

Recommendation 13: That CASA implements a rigorous, ‘error tolerant’ process for formally logging, recording and responding to industry submissions in a systematic and transparent way.

Are there any issues you would like CASA to consider in responding to Recommendation 13?

Please provide details below:

Recommendation 17

Independent review findings related to Recommendation 17

“CASA documents related to CAO 48.1 were found to have inconsistent formatting, and unclear unhelpful labelling, making it difficult in some cases to understand their purpose and relationship to other documents.” (p. 49)

Recommendation 17: That CASA implements a process which utilises standard templates to produce documents that are clearly identifiable, and presented in a consistent, ‘user-friendly’ format. Such documents would then be more easily stored and managed, creating a logical trail for future reference.

Are there any issues you would like CASA to consider in responding to Recommendation 17?

Please provide details below:

Recommendation 18

Independent review findings related to Recommendation 18

“The identification of current or “in force” versions of CAO 48.1 and associated publications on the CASA website was found to lack clarity and create confusion. This is apparent from feedback received during recent industry consultation, where considerable confusion was reported over which document/s represented the currently applicable version/s of CAO 48.1. While the CASA website includes some explanation of this, it is not evident which documents / versions are currently applicable. Industry feedback also noted the problem of having to work with unincorporated amendments, and raised concerns about the complexity and difficulty of having to refer to multiple documents to attempt to fully comprehend the CAO 48.1 rule set. Ideally, the CASA website would provide a clear path for each defined sector rather than a single page of all documents that may or may not be relevant to some sectors.” (p. 49)

Recommendation 18: That CASA provides clearer guidance (on the website and elsewhere as necessary) on the current status of, and relationship between, all CAO 48.1 documentation.

Are there any issues you would like CASA to consider in responding to Recommendation 18?

Please provide details below:

Regulation development, implementation and transition approach

The independent review made five recommendations relating to CASA's **regulation development, implementation and transition approach** - Recommendations 14, 15, 19, 20 and 21.

Please comment on these recommendations below.

Recommendation 14

Independent review findings related to Recommendation 14

“In hindsight, the quantum of feedback on CAO 48.1 over multiple iterations of the legislation indicates shortcomings in the way the new fatigue rules were initially designed and tested with industry. Substantial changes were made in response to industry feedback on NPRM 1210OS, and two subsequent Consultation Drafts (Annex E to NFRM 1202OS, Regulation Impact Statement (RIS) – Review and Amendment of Flight Crew Fatigue Regulations, March 2013;; and Annex B to CD1510OS – Proposed changes to CAO 48.1 Instrument 2013, undated). While these amendments, some cosmetic and some quite substantial, show flexibility on CASA’s part, they also indicate that the proposed rules did not undergo sufficient ‘beta testing’ prior to publication of the NPRM.” (p. 47)

Recommendation 14: That for future complex, industry-wide regulatory change, CASA considers ‘road-testing’ the proposed changes in a collaborative ‘desk-top’ exercise with a representative sample of operators, to identify critical stumbling blocks, before formal implementation of the legislation and industry-wide roll-out.

Are there any issues you would like CASA to consider in responding to Recommendation 14?

Please provide details below:

Recommendation 15

Independent review findings related to Recommendation 15

“Concern was expressed across various industry sectors about the potential for a lack of standardisation and substantial regional variability in the evaluation of applications and oversight of FRMS between regional CASA offices. Examples were cited of cases where operators in different locations had submitted virtually identical documentation for FRMS approval, with one application being accepted and one being rejected. Anecdotal evidence of regional variation in relation to other previous regulatory reform processes was also widely cited.

Regarding CAO 48.1, one operator reported considerable frustration as a result of inconsistent messages from CASA about their airline’s suitability to implement an FRMS. While the operator was initially told that “there were only two airlines in Australia that were large enough and mature enough to have an FRMS”, this advice was amended by 2016, when they were strongly encouraged towards adopting an FRMS. They are now on track to do this, but at some cost due to the earlier misdirection.

Other organisations expressed concern that CASA’s education processes on FRMS needed “urgent improvement”, as they believed there were currently some gross misunderstandings and misinterpretations of the intent of CAO 48.1 within various sectors of industry, including within CASA itself.” (pp. 47-48)

Recommendation 15: That as part of the regulatory package development process, CASA develops in-house training, guidelines and communication protocols to ensure that CASA staff supporting the implementation of new regulations are all ‘on the same page’ when advising industry.

Are there any issues you would like CASA to consider in responding to Recommendation 15?

Please provide details below:

Recommendation 19

Independent review findings related to Recommendation 19

"It is vital for CASA to plan and prepare for CAO 48.1 implementation effectively and get the roll-out strategy right. At a minimum, this is likely to include:

- the provision of more appropriate and more sufficient staff resources;
- the acquisition or development of greater Fatigue Management and FRMS knowledge and expertise within CASA;
- the provision of enhanced Fatigue Management and FRMS awareness training for both the industry and relevant CASA staff;
- the development of a strategy and processes for standardisation of the evaluation and oversight of FRMS applications and operations;
- improved internal and external stakeholder communications regarding all aspects of CAO 48.1 transition; and
- an evaluation process through which CASA can critically assess the outcomes and effectiveness of CAO 48.1 (including any adverse unintended consequences) at appropriate intervals post implementation." (p. 50)

Recommendation 19: That CASA allocates appropriate resources to the planning of a detailed, coordinated CAO 48.1 implementation strategy, as a matter of priority.

Are there any issues you would like CASA to consider in responding to Recommendation 19?

Please provide details below:

Recommendation 20

Independent review findings related to Recommendation 20

“The Independent Review Team finds that the instability of the CAO 48.1 Instrument and associated documentation and the numerous changes to application and transition dates have provided considerable uncertainty and inconvenience for industry.

The current transition dates are not feasible and should be discarded, with future changes to transition dates frozen until the Instrument is stabilised and ready for implementation. The strategy of encouraging “early adopters” to transition to an FRMS should also be abandoned until the instrument and all associated documentation is stabilised.” (p. 51)

CASA NOTE: *The deadline for operators and Part 141 certificate holders to submit draft operations manual changes or apply for a fatigue risk management system (FRMS) by 30 April 2018 **no longer applies**. CAO 48.1 Instrument 2013 has been amended accordingly and work to amend associated industry exemptions and legislative instruments is currently underway.*

Recommendation 20: That CASA freezes CAO 48.1 transition dates for all elements of the aviation industry until recommended changes resulting from the current Review can be made to stabilise a final version of CAO 48.1 and all associated supporting documentation for implementation.

Are there any issues you would like CASA to consider in responding to Recommendation 20?

Please provide details below:

Recommendation 21

Independent review findings related to Recommendation 21

“The Review Team finds that CASA’s plan to transition most elements of the Australian aviation industry to CAO 48.1 concurrently is highly ambitious and not workable, particularly given the low current fatigue management capability noted above. It is believed that adoption of a risk-based staggered transition across the industry will allow for a more orderly transition and more sustainable regulatory assessment and oversight.” (p. 51)

Recommendation 21: That CASA adopts a staggered approach to the implementation of and transition to CAO 48.1, with initial transition proceeding first for elements of the industry with the highest risk exposure.

Are there any issues you would like CASA to consider in responding to Recommendation 21?

Please provide details below:

Priorities for action and final comments

We are interested to know how you would prioritise the issues you have raised in your feedback to this consultation. This will help focus our planning for the next stage and ensure that the most important issues identified overall are addressed.

When you reflect on the feedback you have provided throughout this consultation, what are the three matters you consider most important?

Priority 1

Priority 2

Priority 3

Do you have any final comments you would like to raise in relation to responding to the fatigue review recommendations?

Should you wish to upload a submission (optional), please upload a file in either .pdf or .docx format:

Please attach a copy of any documents you wish to include to this printout.

Final questions to assist analysis

In order for us to summarise the responses of different stakeholder groups, we have some final questions.

What fatigue rules do you currently apply?

More information

The **fatigue rules for operators and pilots page** <<https://www.casa.gov.au/safety-management/standard-page/general-fatigue-management-rules>> has information about the rules currently in force, including details on recent changes to the legislation.

Please select only one item

- The new rules (CAO 48.1 Instrument 2013) – Appendix 1-6
- The amended new rules (CAO 48.1 Instrument 2016) – Appendix 1-6
- The new rules (CAO 48.1 Instrument 2013/2016)– FRMS
- The old rules (CAO 48) including standard industry exemptions
- Not applicable to my role Don't know

Which of the following best describes your current primary role in the aviation sector?

Please select only one item

- Aerial work
 Charter operator
 Private flying
 Business aviation
 Regular public transport
 Sport aviation (including self-administered organisations)
 Remotely piloted aircraft systems

Flight training including recreational, private and commercial pilot training organisations, and multi-crew training organisations

- Student pilot
 Recreational pilot/private pilot
 Commercial pilot
 Air transport pilot
 Maintenance authority
 Cabin crew
 Air traffic controller
 Aircraft design/engineering/building
 Maintenance organisation
 Maintenance training organisation
 Licensed aircraft maintenance engineer
 Aircraft maintenance engineer
 Aerodrome services including ground handling, aviation rescue, and fire fighting
 Aviation medicine
 Consultant & other professional services
 Chief engineer
 Chief pilot
 Government organisations
 Safety manager
 CASA officer
 Other (Specify)

Approximately what is the size of your operation (number of aircraft)?

Please select only one item

- 1-5
 6-10
 11-20
 21-30
 31-40
 41-50
 51-70
 71-90
 91-100
 More than 100
 Not applicable to me

Approximately how many pilots are involved in your operation
(including full time, part time and contractors)?

Please select only one item

- 1-5 6-15 16-30 31-50 51-70 71-100 101-150
 151-200 201 or more Don't know Not applicable to me

What is your postcode?