



CIVIL AVIATION PUBLICATION

CAP 12

EXEMPTIONS

INDEX

This Page Intentionally Left Blank

CIVIL AVIATION PUBLICATIONS

CAP 12

EXEMPTIONS

INDEX

Section	Title	Page No.
1	Introduction	1
2	Applicability	1
3	Petitions for Exemptions	2
4	Requirements for Application	2
4.1	General	2
4.2	Action on Petitions for Rule Making or Exemptions.....	3
5	Review, Publication and Issue or Denial of the Exemption	4
5.1	Initial Review by the Authority.....	4
5.2	Evaluation of the Request	4
5.3	Notification of Determination	5
6	Extension of the Exemption to Other Interested Parties	6
7	Validity of Exemption	6
8	Suspension and Cancellation of Exemption	6
9	Manual	6
10	Non-Compliance without Applicable Exemption	7
Attachment 1 - Procedure for conducting a risk assessment and establishing an equivalent level of safety		ATT 1-1

CIVIL AVIATION PUBLICATIONS

Bahrain CAA Publication Revisions Highlight Sheet

CAP: 12

TPM: _____

The following pages have been amended to Revision 02 dated 17 September 2024.

Item	Paragraph / Chapter Number	Page(s)	Reason
1.	Index	i	Introduction of an attachment
2.	Revision Highlights	ii	To reflect the current revision highlights
3.	Record of Revision	iii	To indicate the record of revision
4.	LEP	iv	To indicate the affected pages
5.	1	1	Additional introductory description for the exemption
6.	2	1	Introduction of additional conditions
7.	3(b)	2	Removal of limitation on petition
8.	4.1(1)(j)	3	Introduction of a note referring to the attachment 1
9.	4.2(h)	4	Deletion of irrelevant terminology
10.	9	6	Introduction of additional procedure with respect to the requirement on the manuals
11.	10	7	Para number change due to the introduction of Para 9
12.	Attachment 1	ATT (1-1) to (1-8)	Introduction of attachment 1 for the guidance on risk assessment.

CIVIL AVIATION PUBLICATIONS

RECORD OF REVISION

CAP 12 EXEMPTIONS

Revision No.	Date of Issue
Initial Issue	11 November 2019
Revision 01	27 June 2022
Revision 02	17 September 2024

CIVIL AVIATION PUBLICATIONS

List of Effective Pages

CAP 12

i	17 Sep 24
ii	17 Sep 24
iii	17 Sep 24
iv	17 Sep 24
v	17 Sep 24

1	17 Sep 24
2	17 Sep 24
3	17 Sep 24
4	17 Sep 24
5	17 Sep 24
6	17 Sep 24
7	17 Sep 24

Attachments

ATT 1-1	17 Sep 24
ATT 1-2	17 Sep 24
ATT 1-3	17 Sep 24
ATT 1-4	17 Sep 24
ATT 1-5	17 Sep 24
ATT 1-6	17 Sep 24
ATT 1-7	17 Sep 24
ATT 1-8	17 Sep 24
ATT 1-9	17 Sep 24

-End-

CIVIL AVIATION PUBLICATIONS

This Page Intentionally Left Blank

CIVIL AVIATION PUBLICATIONS

1 INTRODUCTION

Compliance with the BCAA's regulatory requirements is obligatory. However, on some occasions, there might be instances where full compliance is not feasible. In those instances, BCAA may grant an exemption from the Air Navigation Technical Regulations (ANTRs) when satisfied that there is a need and subject to compliance with any supplementary condition that BCAA considers necessary in order to ensure an acceptable level of safety in the particular case. Such measures must be supported by appropriate, robust and documented safety risk assessments or aeronautical studies and imposition of limitations, conditions or mitigation measures, as appropriate.

Exemptions for operators, or other organisations, must be consistent with other such operators or organisations, so that all Inspectors can apply standardised procedure in their processing of requests. It is an operator's responsibility to plan for contingences within the latitude of the legislation and there is no obligation upon the BCAA to grant an exemption or variation. The granting of an exemption should always include an equivalent safety provision, so that the safety of the aircraft, crew, passengers and persons on the ground is not compromised.

2 APPLICABILITY

Any interested person may apply to BCAA for an exemption from the regulations.

Only BCAA may issue exemptions, and no person may take or cause to be taken any action not in compliance with the regulations unless BCAA has issued an applicable exemption to the person.

An exemption should not be regarded by applicants as a means to circumvent the requirements. Similarly, it should not be regarded as the primary solution to an operational difficulty faced by an operator. An exemption should only be requested by an operator or maintenance organisation (and considered by BCAA) based on due technical cause. Exemptions shall, under no circumstance, be issued in retrospect as a means to alleviate against a breach of a requirement.

Where ICAO Annex 6 Part I, II or III Standards apply;

- No exemption shall be granted.

Where ICAO Annex 6 Part I, II or III Standards do not apply

- Temporary exemptions may be granted.
- An action plan will be required, and where aircraft equipment is involved, the action plan shall include the phasing out the aircraft or modification of the aircraft within 1 year

Exemptions will only be granted in extraordinary circumstances.

Note: The term "exemptions" also includes exceptions.

CIVIL AVIATION PUBLICATIONS

3 PETITIONS FOR EXEMPTIONS

The following policy applies;

- (a) Any interested person may petition the Undersecretary of BCAA to issue, amend or delete any regulation or technical standard.
- (b) Any person affected by any regulation who feels he has just cause for relief, may petition the Undersecretary of BCAA for exemption.
- (c) Each petition filed under this section must:
 - (i) Be submitted at least 60 days before the proposed effective date of the regulation.
 - (ii) Include the text or substance of the regulation from which the exemption is sought, or specify the regulation that the petitioner seeks to have deleted.
 - (iii) Explain the interests of the petitioner in the action requested and in the case of an exemption, include the nature and extent of the relief sought, a description of each aircraft or persons to be covered by the exemption and:
 - (iv) Contain any information, views, or arguments available to the petitioner to support the action sought, the reasons why granting of the request would be in the public interest and, if appropriate, in the case of an exemption, the reason why the exemption would not adversely affect safety, or the action to be taken by the petitioner to provide a level of safety equal to that provided by the regulation from which the exemption is sought. Such a petition shall be supported by an appropriate, robust and documented safety risk assessment or safety case that shall include any imposition of limitations, conditions or mitigation measures, as appropriate.

4 REQUIREMENTS FOR APPLICATION

4.1 General

- (1) Applications for an exemption should be submitted at least 60 days in advance of the proposed effective date, to obtain timely review. An applicant for an exemption shall submit form ALD/GEN/F186 containing the following as applicable:
 - (a) The applicant's name and address;
 - (b) Details of any relevant authorization,
 - (c) A citation of the specific requirement from which the applicant seeks relief;
 - (d) Description of the type of operations to be conducted under the propose exemption;
 - (e) The proposed duration of the exemption;

CIVIL AVIATION PUBLICATIONS

- (f) Explain the interests of the applicant in the exemption requested, including the nature and extent of the exemption requested and a description of each person or thing to be covered by the exemption;
- (g) An explanation of how the exemption would be in the public interest, that is, benefit the public as a whole;
- (h) A detailed description of the alternative means by which the applicant shall ensure a level of safety equivalent to that established by the Regulation in question;
- (i) A review and discussion of any known safety concerns with the requirement, including information about any relevant accidents or incidents of which the applicant is aware;
- (j) a safety risk assessment to justify the application of the exemption as well as the continuing need for the exemption;

Note: Refer to Attachment 1 for the guidance on “Risk Assessment and Establishing an Equivalent Level of Safety”.

- (k) If the applicant seeks to operate under the proposed exemption outside of the kingdom of Bahrain airspace, the application shall also indicate whether the exemption would contravene any provision of the Standards and Recommended Practices of the International Civil Aviation Organisation (ICAO).
- (2) Unless BCAA agrees otherwise, an application for an exemption shall be submitted no less than sixty days in advance of the proposed effective date of the exemption.
 - (3) Where an applicant seeks urgent processing, the application must contain supporting facts and reasons why the application was not filed in a timely manner, and the reasons it is an urgency. An application may be rejected if the Authority finds that the applicant has not justified the failure to apply in a timely manner.
 - (4) If the applicant is not a citizen or legal resident of the Kingdom of Bahrain, the application must specify a Bahraini agent for service.

4.2 ACTION ON PETITIONS FOR RULE MAKING OR EXEMPTIONS

- (a) Except for the written notice of proposed rule-making and comment procedures provided in this section, no public hearing, argument, or other formal proceeding will be conducted.
- (b) Except in cases of urgency, written notice of proposed rule-making will be distributed to affected aviation interests. A period of 30 days will normally be allowed for interested persons to submit comments to BCAA.

CIVIL AVIATION PUBLICATIONS

- (c) Comments concerning proposed rule-making must be submitted in a form acceptable to BCAA.
- (d) BCAA will consider all comments pertinent to proposed rule-making when they are submitted in the prescribed manner and within the established time limits.
- (e) Exemptions may be granted by BCAA if it determines after a technical evaluation that a petition is in the public interest and it provides a level of safety equivalent to that established by the regulation, the exemption will be in the form of a letter and will include:
 - (i) Name of petitioner.
 - (ii) A citation of each rule from which relief is requested.
 - (iii) A brief description of the general nature of the relief granted.
 - (iv) Disposition of the petition.

Note: All exemptions must be controlled.

- (f) If BCAA determines that a petition for an exemption cannot be justified, he will provide the petitioner with written notification of that decision.
- (h) The applicant shall regularly review any exemptions with a view to removing the need for such exemptions, where possible, as well as check the validity and robustness of any mitigating measures in place.

5 REVIEW, PUBLICATION, AND ISSUE OR DENIAL OF THE EXEMPTION

5.1 Initial Review by the Authority

- (a) BCAA will review the application for accuracy and compliance with the requirements of paragraph 4 above.
- (b) If the application appears on its face to satisfy the provisions of paragraph 4 above and BCAA determines that a review of its merits is justified, BCAA will publish a detailed summary of the application for comment and specify the date by which comments must be received by BCAA for consideration.
- (c) If the filing requirements of paragraph 4 above have not been met, BCAA will notify the applicant and take no further action until the applicant complies with the requirements of paragraph 4 above.

5.2 Evaluation of the Request

- (a) After initial review, if the filing requirements have been satisfied, BCAA shall conduct an evaluation of the request to include:
 - (i) A determination of whether an exemption would be in the public interest;

CIVIL AVIATION PUBLICATIONS

- (ii) A determination, after a technical evaluation, of whether the applicant's proposal would provide a level of safety equivalent to that established by the Regulation:
 - (1) A safety risk assessment or safety case shall be developed by the applicant to demonstrate whether an equivalent level of safety or an alternative acceptable means of compliance can be achieved.
 - (2) BCAA shall carry out a technical evaluation of the application for grant of exemption and review the applicant's risk assessment or safety case for acceptance. The exemption, if granted, shall contain conditions/limitations for the person/organisation to follow while operating under the exemption. In all cases, before granting exemption, it shall be ascertained that an equivalent level of safety is maintained.
 - (3) If it appears to BCAA that a technical evaluation of the request would impose a significant burden on the Authority's technical resources, BCAA may deny the exemption on that basis.
 - (4) The issuance of an exemption which is not supported by a safety risk assessment or safety case and by a thorough review by BCAA is not acceptable.
- (iii) A determination, if the applicant seeks to operate under the exemption outside of the Bahrain FIR, of whether a grant of the exemption would contravene the applicable ICAO Standards and Recommended Practices, and, if so, ensure that ICAO is notified of the differences.
- (iv) An evaluation of comments received from interested parties concerning the proposed exemption.
- (v) A recommendation, based on the preceding elements, of whether the request should be granted or denied, and of any conditions or limitations that shall be part of the exemption.

5.3 Notification of Determination

- (a) BCAA shall notify the applicant by letter and publish a detailed summary of its evaluation and decision to grant the request, the summary shall specify the duration of the exemption and any conditions or limitations to the exemption.
- (b) If the request is for urgency relief, will publish the application and/or the Authority's decision as soon as possible after processing the application.
- (c) All cases involving the granting of exemptions shall be fully documented and recorded and all exemptions shall be published on BCAA website, www.mtt.gov.bh and/or in the AIP. The publication shall include the following particulars in respect of the exemption granted:
 - (i) The reference number of the application;

CIVIL AVIATION PUBLICATIONS

- (ii) The full name of the applicant;
- (iii) A reference to the requirement for which exemption is granted;
- (iv) References to relevant limitations, conditions or mitigation measures; and
- (v) The expiry date of the exemption.

After the expiry of the period of exemption, all notifications shall be removed.

6 EXTENSION OF THE EXEMPTION TO OTHER INTERESTED PARTIES

- (a) If BCAA determines that an exemption should be granted, other persons or organizations may apply to BCAA to be included in the relief granted.
- (b) Such applications shall be in accordance with the requirements of paragraph 4 above.
- (c) If BCAA determines that the request merits extension of the exemption to the applicant, it shall notify the applicant by letter, specifying the duration of the exemption, and listing any additional conditions that may pertain to the applicant that are not addressed in the underlying exemption.

7 VALIDITY OF EXEMPTION

- (a) An exemption granted shall cease:
 - (i) At the end of the date specified in the instrument of exemption; or
 - (ii) If no date is specified for that purpose in the instrument, one year after the commencement of the exemption.
- (b) An exemption granted to an applicant shall be in the name of that applicant and shall be non-transferable.

8 SUSPENSION AND CANCELLATION OF EXEMPTION

Notwithstanding anything contained in these procedures, the Undersecretary for Civil Aviation Affairs (USCA) may suspend permanently/ for a specified time or cancel an exemption granted if he has reason to believe that the holder of the exemption does not conform to the minimum safety standards.

9 MANUAL

Permanent exemptions should be included in the Operator's Manual respective to the area of exemption, as part of the approval process. In the case where it is temporary, it may be acceptable to be placed in the operator's personnel notification system.

CIVIL AVIATION PUBLICATIONS

| 10 NON-COMPLIANCE WITHOUT APPLICABLE EXEMPTION

- (a) No person may take or cause to be taken any action not in compliance with the regulations unless BCAA has issued an applicable exemption to the person/organisation.
- (b) Any person, organisation or entity, conducting an operation in commercial air transport or international commercial air transport who contravenes the provisions of this regulatory procedure commits an offence and upon conviction, shall be liable to a penalty which may include a fine in accordance with the Enforcement Manual.
- (c) Any person, organisation or entity, other than that conducting an operation in commercial air transport or international commercial air transport, who contravenes the provisions of this regulatory procedure commits an offence and upon conviction, shall be liable to a penalty which may include a fine in accordance with the Enforcement Manual.

CIVIL AVIATION PUBLICATIONS

ATTACHMENT 1

PROCEDURE FOR CONDUCTING A RISK ASSESSMENT AND ESTABLISHING AN EQUIVALENT LEVEL OF SAFETY

RISK MANAGEMENT:

Risk management is an integral component of safety management and involves six essential steps:

- 1) identifying hazards,
- 2) conducting a risk analysis to evaluate the severity of the consequences of hazards that are occurring,
- 3) establishing the probability of occurrence,
- 4) establishing if the severity of the risk is acceptable by the CAA,
- 5) either accept the risk or introduce mitigation factors to reduce the risk to an equivalent and acceptable level of safety, and
- 6) continuously review the risk assessment and exemption granted.

The following Safety Risk Management flowchart should be taken into consideration for risk control/mitigation in providing a technical recommendation for an exemption:

Safety Risk Management flowchart (Fig 1):



The following steps provide a procedure that should be followed to conduct a risk assessment and review a risk assessment as part of the application of an exemption:

1. IDENTIFYING HAZARDS

Brainstorm the types of safety hazards which may threaten the safety of passengers, employees or contractors, as well as cause damage to equipment or harm the environment, for example, for flight crew, fuel exhaustion would be a hazard that could result in the loss of both an aircraft and its passengers. For maintenance engineers, fatigue might be a hazard during night shift operations.

CIVIL AVIATION PUBLICATIONS

Consideration should also be given to systemic hazards, which are organizational factors that may contribute to safety-related issues. These hazards encompass inadequate training, the absence of policies or procedures, and non-compliance with established protocols.

To ensure the identification of hazards that may not be immediately apparent, the following guidelines can serve as a starting point for individuals conducting safety inspections:

- a. Colleague consultation: Seek input from colleagues to identify potential hazards that may not be readily noticeable.
- b. Review of accident records: Examining accident records can often reveal less obvious hazards that have been previously encountered.
- c. Analysis of past safety occurrences and maintenance errors: Thoroughly review past safety incidents and instances of maintenance errors. This analysis will aid in comprehending the risks involved, as well as their likelihood and potential consequences throughout the process.

2. ESTABLISHING THE PROBABILITY OF OCCURRENCE OR LIKELIHOOD

An important task in analyzing risk is to determine the risk level based on its *likelihood* and *consequence*.

Likelihood consists of two parts:

- i. The likelihood of a single event occurring
- ii. The likelihood of the event occurring based on exposure and repetition (how often the task is performed, such as cycles of aircraft maintenance, base training of the pilots etc.)

A simple way to determine the *likelihood* is to rank the hazard based on its potential frequency of occurrence. This can be done on a simple five- point scale, from ‘rare’ to ‘almost certain’. In order to establish the likelihood of a hazard and any current mitigation measures and assess the likelihood/probability of the risk or hazard occurring should be taken into account. Refer below mentioned table.

Safety risk probability table (Fig 2):

Risk Probability	Meaning	Value
Frequent	Likely to occur many times (has occurred frequently)	5
Occasional	Likely to occur sometimes (has occurred infrequently) example: Once in next month.	4
Remote	Unlikely to occur, but possible (has occurred rarely) example: Once in next 12 months	3
Improbable	Very unlikely to occur (not known to have occurred) example: Once in next 1—5 years.	2
Extremely improbable	Almost inconceivable that the event will occur example: Once in next 10 years.	1

CIVIL AVIATION PUBLICATIONS

3. CONDUCT A RISK ANALYSIS TO EVALUATE THE SEVERITY OF HAZARDS THAT ARE OCCURRING.

Once a list of possible hazards is established, they need to be assessed critically in order to rank them. Factors to consider are the likelihood (how often the hazard might result in a safety occurrence) and the severity (how bad the outcome would be) of any consequences. For example, a serious inflight fire might be an unlikely occurrence, but it would be catastrophic if it were to occur. It would rank above a bird strike which, although much more likely to occur, tends to be less severe.

For each hazard, it is important to be clear about who or what might be harmed and what causes harm. This will then help in identifying the best way to manage the risk. This doesn't mean listing everyone by name, but rather identifying groups of people (e.g., flight crew, cabin crew, and passengers).

In each case, what might occur needs to be identified. The possible reasons (root causes) of the hazard also need to be determined.

To establish the severity of a hazard, consideration should be given to any current mitigation measures, and the severity should be assessed in terms of the worst possible realistic scenario. The following chart can be referred to in order to establish severity levels:

Severity Level (Fig 3):

Severity	Meaning	Value
Catastrophic	<ul style="list-style-type: none"> • Aircraft / equipment destroyed • Multiple deaths 	A
Hazardous	<ul style="list-style-type: none"> • A large reduction in safety margins, physical distress or a workload such that operational personnel cannot be relied upon to perform their tasks accurately or completely • Serious injury • Major equipment damage 	B
Major	<ul style="list-style-type: none"> • A significant reduction in safety margins, a reduction in the ability of operational personnel to cope with adverse operating conditions as a result of an increase in workload or as a result of conditions impairing their efficiency • Serious incident • Injury to persons 	C
Minor	<ul style="list-style-type: none"> • Nuisance • Operating limitations • Use of emergency procedures • Minor incident 	D
Negligible	<ul style="list-style-type: none"> • Few consequences 	E

Consequence is the potential impact or outcome that may result from the hazard. This can range from insignificant to catastrophic.

The risk and identified hazard will then be put into the risk tolerability matrix to assess how tolerable the risk is, using the results obtained from the assessment of the severity/consequences and likelihood charts. The risk tolerability matrix and chart below will be used:

CIVIL AVIATION PUBLICATIONS

Risk Tolerability Matrix (Fig 4):

Risk probability	Risk severity				
	Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent 5	5A	5B	5C	5D	5E
Occasional 4	4A	4B	4C	4D	4E
Remote 3	3A	3B	3C	3D	3E
Improbable 2	2A	2B	2C	2D	2E
Extremely improbable 1	1A	1B	1C	1D	1E

Example of Safety risk tolerability (Fig 5):

Safety Risk Index Range	Safety Risk Description	Recommended Action
5A, 5B, 5C, 4A, 4B, 3A	INTOLERABLE	Take immediate action to mitigate the risk or stop the activity. Perform priority safety risk mitigation to ensure additional or enhanced preventative controls are in place to bring down the safety risk index to tolerable.
5D, 5E, 4C, 4D, 4E, 3B, 3C, 3D, 2A, 2B, 2C, 1A	TOLERABLE	Can be tolerated based on the safety risk mitigation. It may require management decision to accept the risk.
3E, 2D, 2E, 1B, 1C, 1D, 1E	ACCEPTABLE	Acceptable as is. No further safety risk mitigation required.

4. ESTABLISH IF RISK IS ACCEPTABLE TO THE BCAA AND MITIGATION FACTORS FOR AN EQUIVALENT LEVEL OF SAFETY

After the risk has been assessed and the severity and likelihood of a hazard have been established, it is necessary to determine which defenses are in place (or need to be put in place) to mitigate the risk and decide how to implement risk management plans for the applicant of the exemption. Recommendations may be made to have the applicant avoid the risk, accept the risk to pursue an opportunity, remove the risk, or share the risk with another party.

To determine if the risk is acceptable, the results of the risk assessment should be recorded. It is important to document the actions taken and evaluations made so that the risk assessment and exemption request can be reviewed at a later date if any changes occur.

The risk assessment does not need to be perfect, but it must be suitable and sufficient. The risk assessment conducted should be able to demonstrate that:

CIVIL AVIATION PUBLICATIONS

- a. A thorough check was conducted.
- b. The personnel considered who might be affected.
- c. The personnel addressed all significant hazards, taking into account the number of people involved.
- d. The precautions are reasonable and any remaining risk is low.
- e. The personnel involved their fellow staff or their representatives in the process.

If, as is often the case in many organizations, it is found that there are several improvements to be made, both large and small, it is not advisable to try to address everything at once. Prioritize the plan of action to address the most significant risks first.

However, operations cannot continue if a risk is assessed as 'intolerable'. The risk must be mitigated to an acceptable level.

A good plan of action often includes a combination of different measures. There may be a few cost-effective or easy improvements that the applicant can quickly implement, perhaps as temporary solutions until more reliable controls are in place. The applicant must remember to prioritize and address the most important aspects first. As the applicant identifies ways to mitigate hazards and risks, the CAA will need to evaluate these mitigation efforts and their implementation.

Identify the controls/defences in place to manage the hazards

After listing the hazards and ranking their order of risk, it should be identified possible defenses (hazard controls) against them as part of the mitigation efforts to establish defenses and controls. For example, one defense against an in-flight fire is a fire extinguisher; a defence against aircraft fuel contamination is correct fuel filtration procedures and regular fuel testing. This step should provide a list of current controls/defences against each hazard: some controls will defend against multiple hazards.

Assess the effectiveness of the current controls/defences

After a list of hazards is compiled, the effectiveness of the current controls or defenses will need to be assessed. The effectiveness of each hazard control/defense is considered. Is the control capable of preventing the occurrence of the hazard (i.e., does it remove the hazard?), or does it only aim to minimize the likelihood or consequence? How effective a hazard control is can be determined by asking questions such as: "Do the crew members know how to use the fire extinguishers, and are the extinguishers correctly maintained?" A list of effective controls, as well as a list of controls that require improvement, will then be available.

Identify further controls/ defenses required

After a list of mitigation and controls is created, each hazard and its control/s should be examined to determine whether the risk is adequately managed or controlled. If it is, the operation can continue. If not, consideration should be given to improving the hazard control or removing/avoiding the hazard altogether. For instance, recurrent training could be provided to the crew for the correct use of fire extinguishers.

The risk should be managed to a point of as low as reasonably practicable (ALARP).

In some instances, there could be a range of solutions to manage a risk. Typically, some are engineering solutions (e.g. redesign), which, although probably the most effective, may also be expensive. Others involve control (e.g. operating procedures) and personnel (e.g. training) and might be less costly. The solution need not be costly to be effective.

CIVIL AVIATION PUBLICATIONS

5. ESTABLISHING ALARP

Where risk is concerned, there is no such thing as absolute safety. Risk management is often based on the concept of ALARP or 'as low as reasonably practicable'. There is wide acceptance that not all risk can be eliminated. There are practical limits to how far the industry and the community will go in paying to reduce adverse risks.

The following procedure establishes how to use the ALARP principle to establish a reasonable degree of safety in the risk and mitigation factors involved:

The ALARP principle and cost-benefit analysis

All efforts should be made to reduce risks to the lowest level possible until a point is reached at which the cost of introducing further safety measures significantly outweighs the safety benefit.

A risk should be tolerated only if it can be demonstrated that there is a clear benefit in doing so (i.e. there is a compelling operational need in the organization).

The ALARP principle identifies three categories of risk:

1. Intolerable
2. Tolerable
3. Acceptable

Intolerable: Risks are classified as Intolerable regardless of the benefits associated with the activity. An Intolerable risk must be eliminated or reduced so that it falls into one of the other two categories, or there must be exceptional reasons for the activity or practice to continue.

Tolerable Risks that people are generally prepared to tolerate to secure their benefits. Tolerable risks must be properly assessed and controlled to keep the residual risk ALARP and must be reviewed periodically to ensure they remain that way (e.g. the potential risk of pedestrians, walking between the terminal and the aircraft, being struck by a moving vehicle is only tolerated IF appropriate barricading, security escort and lighting are in place).

Acceptable Risks are considered sufficiently low and well controlled. Further risk reduction is required only if reasonably practicable measures are available. Broadly acceptable risks are those that people would regard as insignificant or trivial in their daily lives, or which exist, but have no practicable mitigator (e.g. most organizations accept that staff could be injured on their way to work but have little control over what happens on public roads).

To determine whether a risk is tolerable (in the ALARP approach), it needs to consider several criteria:

- a. Legal requirements
- b. Expert judgement
- c. Cost-benefit analysis
- d. Industry good practice

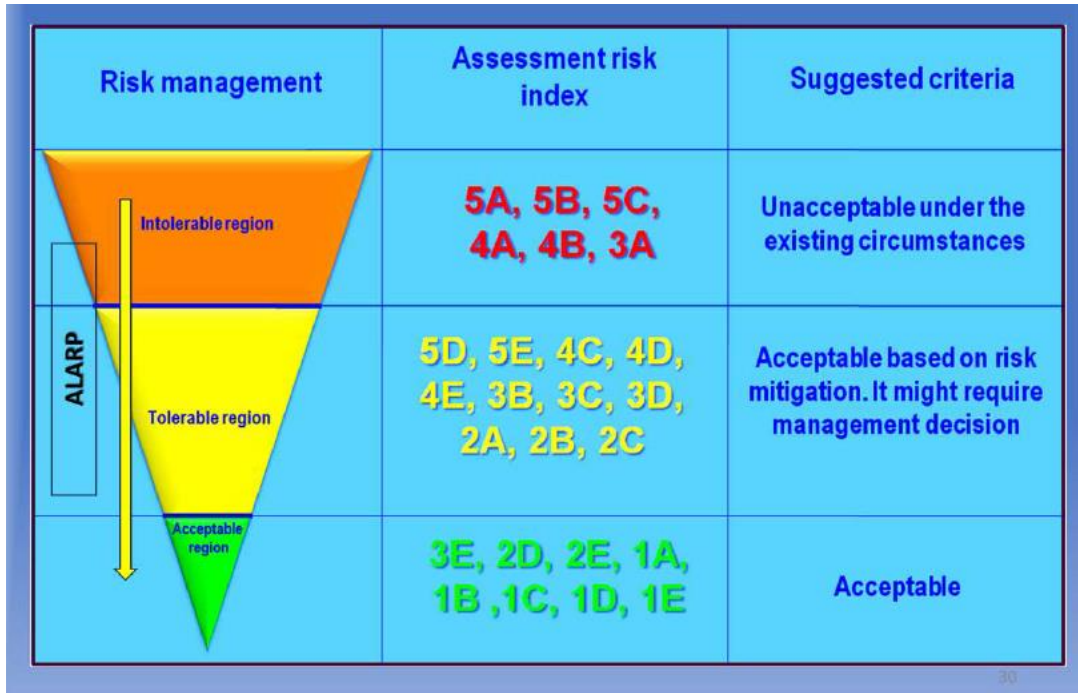
If the proposed control represents current, relevant, established good practice, that is sufficient evidence to conclude that it is reasonably practicable. For example, it:

- complies with aviation industry standards, rules or procedures
- is a practice of other operators that are similar in scale and operation

CIVIL AVIATION PUBLICATIONS

- is established and widely implemented in another industry sector
- matches other countries' legislated enforcement of the practice
- is proven to have demonstrably improved safety or can be implemented without significant modification or cost.

Risk index/Tolerability (Fig 6):



ALARP Application: Identification of Hazards

- Decide who should be involved in the assessment process.
- Evaluate the risks and decide on precautions
- Record your findings and implement them.
- Review your assessment and update if necessary

Risk Assessment: The ALARP Principle

The concept of 'As Low as Reasonably Practicable' or ALARP is commonly referred to for risks with significant safety or environmental consequences and is shown in the diagram below. The concept is also applicable for other risks.

The approach is to divide risks into three bands, which align with the risk ratings from the Risk Tolerability Matrix (Fig 4) & Safety risk tolerability (Fig 5), as follows:

- An upper band where adverse risks are intolerable whatever the benefits the activity may bring and the risk reduction measures are essential whatever the cost.
- A middle band where costs and benefits are taken into account and opportunities balanced against potential adverse consequences.
- A lower where positive or negative risks are negligible, or so small that no further risk treatment measures are needed.

Where the risk is close to the intolerable level it is expected that the risk will be reduced unless the cost of reducing the risk is grossly disproportionate to the benefits gained.

CIVIL AVIATION PUBLICATIONS

Where risks are close to the negligible level then action should only be taken to reduce the risk where benefits exceed the costs of reduction.

6. ACCEPT OR RE-DO THE SAFETY RISK ASSESSMENT TO ESTABLISH AN ACCEPTABLE LEVEL OF SAFETY

Carrying out a safety risk assessment is an iterative process. A safety risk assessment may need to be conducted multiple times until the risk is reduced to an acceptable level of safety. This iterative process may require following the above steps repeatedly until hazards or identified corrective actions result in an acceptable level of safety.

7. CONTINUOUS REVIEW OF ASSESSMENT AND UPDATE IF NECESSARY

The risk assessment should be continuously reviewed and updated as necessary to ensure its accuracy and relevance. The review date for the risk assessment should be coordinated and set, and it should be scheduled on the calendar for review. This ensures that the risk assessment remains up to date and reflects any changes or developments that may impact the safety considerations.

During the year, if a significant change occurs, it should not be delayed. The risk assessments should be checked and, if necessary, amended to ensure they accurately reflect the updated circumstances.

Monitor the effectiveness of the implementation

The implementation solutions should be monitored to ensure their effectiveness. If the solutions are not working as intended, the established controls and defenses should be reassessed. This may necessitate conducting audits of the mitigations or systems in place to reduce risk. The purpose of these audits is to evaluate the performance and adequacy of the implemented measures and identify any areas that require improvement.

The BCAA may review the operators / applicant's system that applicant has established a procedure to regularly review any exemptions/ variations with a view to removing the need for such exemptions, where possible, as well as check the validity and robustness of any mitigating measures in place.

CIVIL AVIATION PUBLICATIONS

This Page Intentionally Left Blank