Belize Department of Civil Aviation

ADVISORY CIRCULAR

Subject: GUIDE TO SUBMIT REQUESTS FOR FLEXIBILITY MEASURE(S) DERIVED FROM COVID-19

Date: June 22, 2020

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Change: First Version

Initiated by: BDCA SSPT

1. THE PURPOSE OF THIS ADVISORY CIRCULAR.

This Advisory Circular (AC) is being issued by the BDCA to provide general guidance to aviation industry stakeholders required to have a Safety Management System (SMS) who, as a result of the COVID-19 pandemic, seek for alleviation measures, exemption(s) or exception(s) from the Belize Civil Aviation Regulations (BCARs).

2. WHAT THIS AC CANCELS.

Not Applicable.

3. WHO THIS AC AFFECTS.

This AC applies to all Belize Air Operator (AOC) Holders, BCARs AMOs, Aerodromes Operators & Air Traffic Service providers that are exposed to safety risks during the provision of their services.

4. WHERE TO GET A COPY OF THIS AC.

You can ask for a hard copy of this AC at the BDCA Technical Library or download it from the BDCA website at www.civilaviation.gov.bz

DEPT. OF CIVIL AVIATION BELIZE

Lindsay Garbutt
Director of Civil Aviation

The Belize Department of Civil (BDCA), has identified the urgent need to help to manage the safety risks derived from the spread of COVID-19 so as to protect the health of people traveling by air and also that of aviation personnel who work for air operators and service providers in the aviation industry.

The BDCA publishes the following guidance material to the aviation industry stakeholders in Belize which includes commercial, corporate and general aviation as well as service providers, when submitting a request for flexibility measure(s)s derived from the COVID-19 pandemic to the Department.

I. SCOPE

AOC holders and service providers who hold an OC interested in submitting flexibility measure(s) derived specifically from the health emergency due to COVID-19.

Any other type of alleviation measures, exemption(s) or exception(s) requested and submitted to the Department must comply with the established procedure in this Circular.

II. OBJECTIVE

This Advisory Circular (AC) takes into consideration that the applicant may request alleviation measures provided that a robust safety risk assessment has been carried out and properly documented. It is being issued by the BDCA with the purpose of providing guidance to aviation industry stakeholders who, as a result of the COVID-19 pandemic, seek for alleviation measures, exemption(s) or exception(s) from the Belize Civil Aviation Regulations (BCARs).

III. PLAN OF ACTION MITIGATION OF SAFETY RISKS

For an AOC holder or a service provider to be eligible to request alleviation measures, exemption(s) or exception(s) a safety risk mitigation action plan must be developed, submitted and be found acceptable to the BDCA.

This plan must describe the mitigating measures that seek to maintain an acceptable level of safety similar to the requirement(s) subject to the request for flexibility measure(s) submitted by an AOC holder and/or a service providers accountable executive.

For the purposes of this circular, the expression "flexibility measure(s)" includes, exemptions, exceptions, relief measures, and other deviations that the BDCA may grant derived from the current health emergency.

The plan must include the following:

a. A list describing the regulatory requirement on which the service provider requests the flexibility measure(s);
b. The type of aeronautical activity that the AOC holder or the service provider will carry out under the requested flexibility measure(s);
c. The aeronautical technical personnel that will continue operating under the requested flexibility measure(s);
d. Establishment of training priorities, related to the grant of alleviation measure(s), for aeronautical technical personnel with critical timelines; and
e. The alternate training plan, evaluations and checks in general, that aeronautical technical personnel must complete to ensure their competence.
f. The safety risk assessment to demonstrate how the hazards / threats and possible consequences have been duly identified and that the proposed controls and / or mitigation measures provide an acceptable level of safety and these are monitored.

Development of the alternative training plan *(see section V "Requirements for the design of the alternative training plan" in this document).*

Any other requirement published in other circulars related to the flexibility measure(s) derived from the affectation, must be included in this plan proposed by the AOC holder and/or the service provider.

IV. DELIVERY, REVIEW AND ACCEPTANCE OF THE SAFETY RISK MITIGATION ACTION PLAN

AOC holders or service providers accountable executives must submit their safety risk mitigation action plans for review to the BDCA or by email official *info@civilaviation.gov.bz*, as soon as necessary, from the publication of this circular.

V. ALTERNATE TRAINING PROGRAMME DESIGN REQUIREMENTS

If the proposed alleviation measures include amendment to an AOC holder's and/or a service provider's previously approved training programme, the submission of the alleviation measure must also contain an alternate training programme which must include as a minimum:

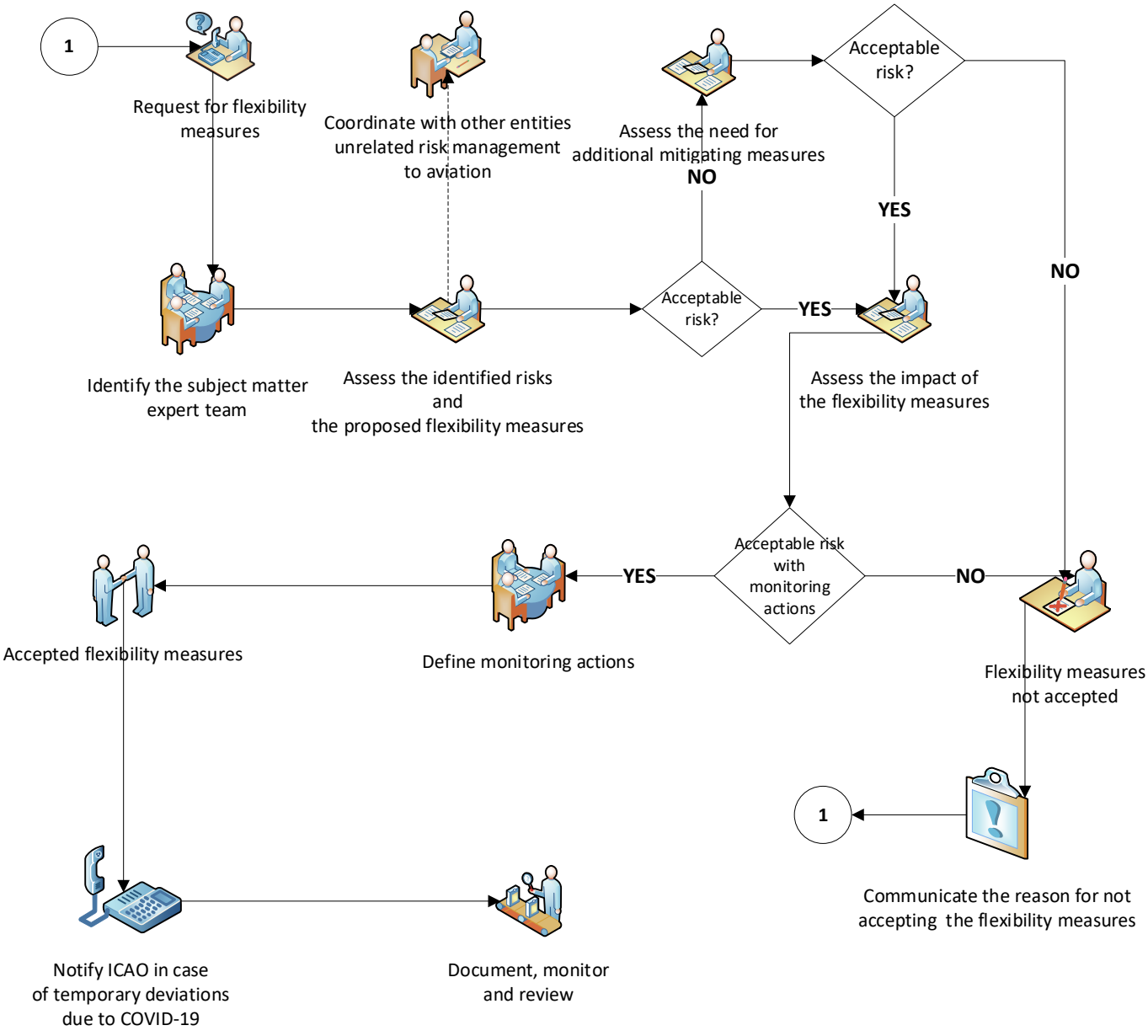
a. The names of the aeronautical technical personnel to be trained, describing the priority of the training;
b. Name of the institution that will provide the training (if applicable);
c. Name of the instructor approved and / or validated by the BDCA according to the pertinent requirements, who will be in charge of giving the training;
d. Scheduling of trainings to be given under the alternate training plan;

e. Review topics; and
f. Sanitary measures addressed by training centers.

If the service provider requires providing the training using the online or virtual modality, which was previously approved in person, this alternative training plan must contain at least the following:

i. Instructions for the training (Tutorial or instructions to guide the student in relation to the modules, activities and evaluations);
ii. Objectives for each topic and / or module;
iii. Content for each topic and / or module;
iv. Duration of the modules;
v. Content focus (development of each title or subtitle described in the content and focusing on real situations and related to the topic);
vi. Evaluation techniques, if applicable;
vii. Time for evaluation;
viii. Content according to training program;
ix. Report management and monitoring thereof;
x. Define the training platform to be used;
xi. Data security;
xii. Contingency plans (impact in the event of a training interruption, electrical energy, system updates, among others).
xiii. Provide access to the appropriate BDCA inspector, to the platform to carry out and verify the effective implementation of virtual training.

VI. PROCESS FOR THE ACCEPTANCE OF FLEXIBILITY MEASURE(S)S



VII. SAFETY RISK ASSESSMENT GENERIC GUIDANCE

There are different techniques or methodologies and models for safety risk assessment, such as Root Cause Analysis, Failure Tree Analysis, amongst others. Two methodologies for safety risk assessment will be presented below, the most recommended being the Bowtie method.

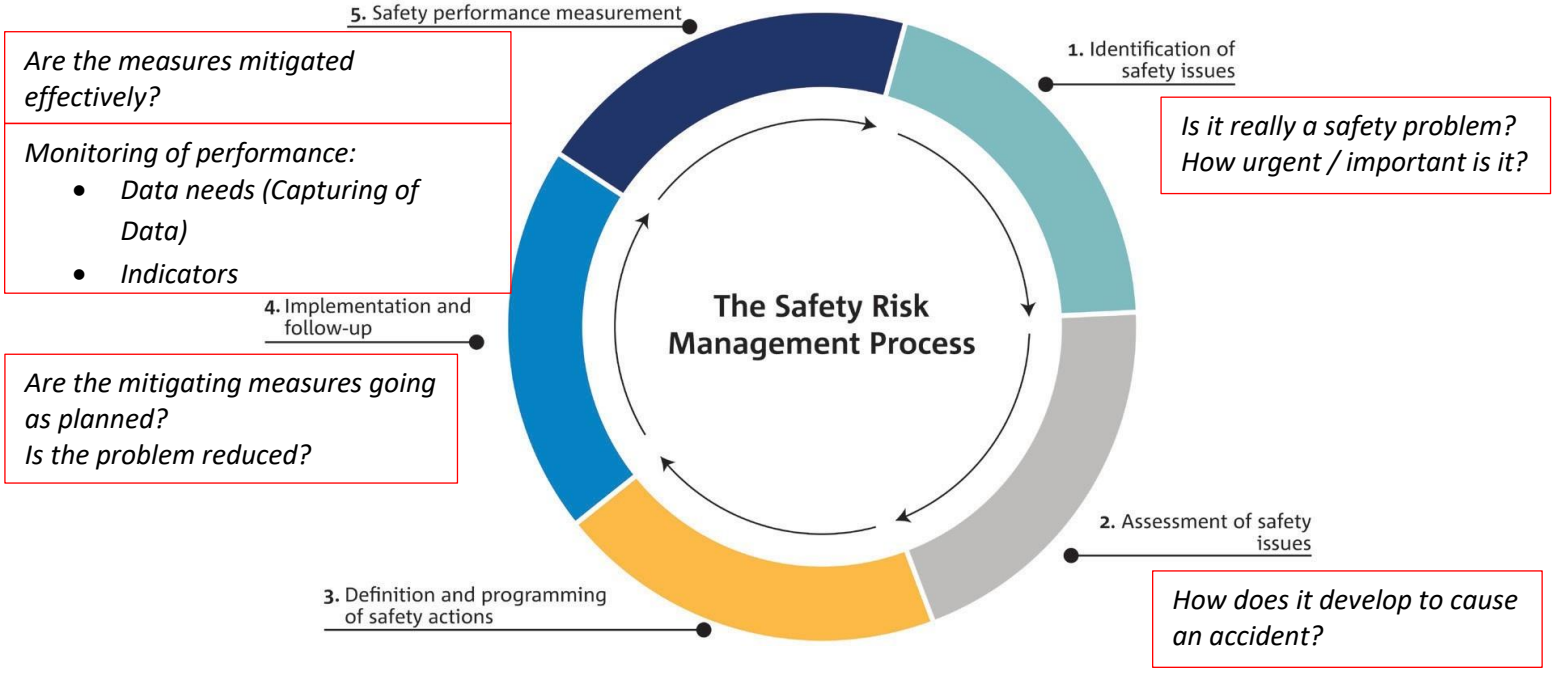
It is recommended that the service provider use the procedures described in their SMS manual accepted by the BDCA, for safety risk assessment.

The safety risk assessment, regardless of the methodology to be used, must contain at least the following:

a. Hazards / threats identified;
b. Possible consequences related to danger;
c. Current defenses or mitigation barriers;
d. Initial and residual risk levels with mitigation actions; and
e. Action plan.

The BDCA makes the SSP Unit available to answer any questions or provide guidance for the development of documentation by the AOC holders and/or service providers.

The generic process for a safety risk management is as follows:



The following concepts and definitions should be taken into account when conducting a safety risk assessment:

a. **Hazard:** A condition or an object with the potential to cause or contribute to an aircraft incident or accident.
b. **Consequence of Hazard:** Potential result of a hazard.
c. **Safety risk probability**: The likelihood that a safety consequence or outcome will occur.

The following questions can assist in the determination of probability:

i. Is there a history of occurrences similar to the one under consideration, or is this an isolated occurrence?
ii. What other equipment or components of the same type might have similar issues?
iii. What is the number of personnel following, or subject to, the procedures in question?
iv. What is the exposure of the hazard under consideration? For example, during what percentage of the operation is the equipment or activity in use?
v. **Table 1** presents a typical safety risk probability classification table. It includes five categories to denote the probability related to an unsafe event or condition, the description of each category, and an assignment of a value to each category. This example uses qualitative terms; quantitative terms could be defined to provide a more accurate assessment. This will depend on the availability of appropriate safety data and the sophistication of the organization and operation.

Table 1. Safety risk probability table

Likelihood	*Meaning*	*Value*
Frequent	Likely to occur many times (has occurred frequently)	5
Occasional	Likely to occur sometimes (has occurred infrequently)	4
Remote	Unlikely to occur, but possible (has occurred rarely)	3
Improbable	Very unlikely to occur (not known to have occurred)	2
Extremely improbable	Almost inconceivable that the event will occur	1

Note. — This is an example only. The level of detail and complexity of tables and matrices should be adapted to the particular needs and complexities of each organization. It should also be noted that organizations might include both qualitative and quantitative criteria.

d. **Safety risk severity:** Defined as the extent of harm that might reasonably be expected to occur as a consequence or outcome of the identified hazard.

The safety risk severity classification should consider:

i. fatalities or serious injury which would occur as a result of:

1) being in the aircraft;
2) having direct contact with any part of the aircraft, including parts which have become detached from the aircraft; or
3) having direct exposure to jet blast; and

ii. damage:

1) damage or structural failure sustained by the aircraft which:
   a. adversely affects the structural strength, performance or flight characteristics of the aircraft;
   b. would normally require major repair or replacement of the affected component;
2) damage sustained by ATS or aerodrome equipment which:
   a. adversely affects the management of aircraft separation; or
   b. ii) adversely affects landing capability.

The severity assessment should consider all possible consequences related to a hazard, taking into account the worst foreseeable situation. **Table 2** presents a typical safety risk severity table. It includes five categories to denote the level of severity, the description of each category, and the assignment of a value to each category.

Table 2. Example safety risk severity table

Severity	*Meaning*	*Value*
Catastrophic	• Aircraft / equipment destroyed • Multiple deaths	A
Hazardous	• 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	• 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	• Nuisance • Operating limitations • Use of emergency procedures • Minor incident	D
Negligible	• Few consequences	E

e. **Safety risk tolerability:** The safety risk index rating is created by combining the results of the probability and severity scores.

The respective severity/probability combinations are presented in the safety risk assessment matrix in **Table 3**. The safety risk assessment matrix is used to determine safety risk tolerability.

Table 3. Example safety risk matrix

Safety Risk	*Severity*				
Probability	*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

Note. — In determining the safety risk tolerability, the quality and reliability of the data used for the hazard identification and safety risk probability should be taken into consideration.

The index obtained from the safety risk assessment matrix should then be exported to a safety risk tolerability table that describes — in a narrative form — the tolerability criteria for the particular organization. **Table 4** presents an example of a safety risk tolerability table.

Table 4. Example of safety risk tolerability

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.

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Sample of a Change Management Template

Change Managemetn Template	
Team Number	Members:

Instructions for Team Members
a) Change Description
b) Hazard identification associated to the change
c) Risk analysis by reviewing the applicable "Customized Safety Risk Metrics"
d) Prepare an implementation plan

a)	
b)	
c)	
d)	
	0

Change Description	

Operation /System	Hazard Nº	Hazard Taxonomy		Unsafe Event	Ultimate Consequence	Current Defenses	Additional Safety Actions	Responsible
		Generic	Specific			Inherent Risk	Residual Risk	
Stop Bar installment (ADR Taxi Ways)	1	ORG. Operational policies/procedures	Working personnel presence on the taxiways in the proximity of the RWY	Inappropriate working behaviours	RI	ADR Working procedures for external workers D. Minor 3.Remote 3D	Restrictions for external workers in sterile areas D. Minor 2.Improbable 2D	
Stop Bar installment (ADR Taxi Ways)	2	ORG. Operational policies/procedures	Working personnel presence on the taxiways in the proximity of the RWY	Inappropriate working behaviours	RE	ADR Working procedures for external workers and publishing of NOTAM C. Major 2.Improbable 2C	NA	
ATS new procedures (Related to the installment of Stop Bars)	3	ORG. Operational policies/procedures	Elaboration and new elements of the ATS procedures related to the activation of the Stop Bars	Wrong application of the new procedures	RI	Training on the new procedure for ATCs C. Major 3.Remote 2C	Additional dissemination of technical information and follow up C. Major 2.Improbable 2C	ATS Provider

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Sample of an Action Plan Template

Task No	Task Description	Period 1				Period 2				Period 3				Period 4				Period 5			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	Work preparations and publishin of NOTAM																				
2	Procedure elaboration																				
3	Stop Bar Instalation																				
4	Training of ATCOs																				

APPENDIX – I

Generic Bowtie model

Bowtie is one of many barrier risks models available to assist the identification and management of risk and it is this particular model we have found (and are still finding) useful.

The Bowtie model consists of different elements that build up the risk picture. The risk picture revolves around the hazard (something in, around or part of an organization or activity which has the potential to cause damage or harm) and the top event (the release or loss of control over a hazard known as the undesired system state).

Consideration is then turned to the "**threats"** (a possible direct cause for the top event), "**consequences"** (results of the top event directly ending in loss or damage) and the controls (any measure taken which acts against some undesirable force or intention).

The controls can be populated on either side of the model showing:

Left hand side of the model	Right hand side of the model
Preventative measures which eliminate the threat entirely or prevent the threat from causing the top event recovery	Measures which reduce the likelihood of the consequence owing to the top event being "live" or mitigate the severity of the consequence

BOW TIE ELEMENTS

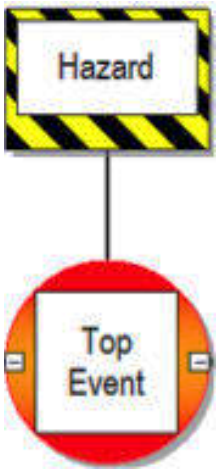
Whether you are building or interpreting a Bowtie, the place to start is with the hazard.

Hazard

The condition, object or activity with the potential of causing injuries to personnel, damage to equipment or structures, loss of material or reduction of ability to perform a prescribed function.

The top event describes the point where we no longer have adequate control over the hazard.

Top event
A point in time which describes the release or loss of control over a Hazard. The undesired system state.



The Bowtie depicts scenarios in a time ordered sequence moving from left to right.

- The hazard and top event are at the center of the diagram.
- Threats are placed to the left of the top event.

They describe events that may cause an unsafe state if not managed with preventative controls.

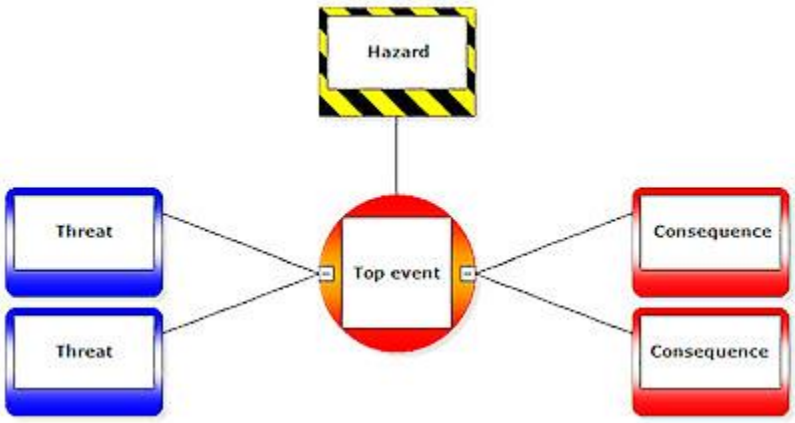
Threats

A possible direct cause that will potentially release a hazard by producing a top event.

Consequences describe the undesirable events (usually accidents and safety related) that may potentially result from the top event if the event is not managed with recovery controls. They are placed to the right of the top event.

Consequences

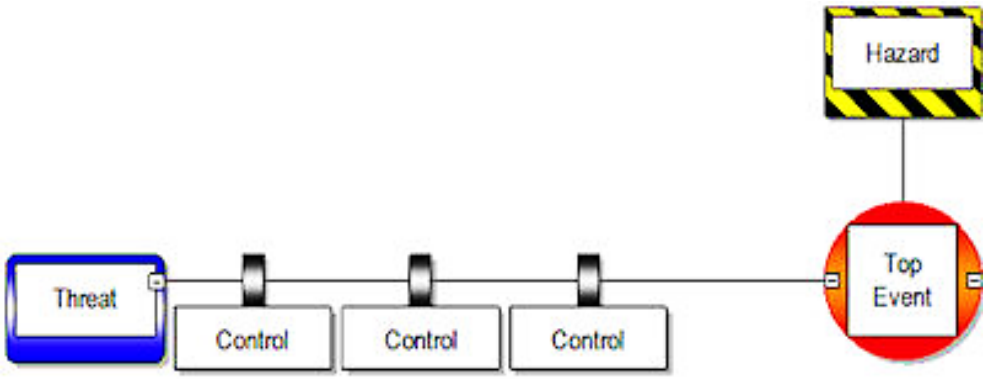
A potential event resulting from the release of a Hazard, which directly results in loss or damage.



Relevant prevention controls are added measures taken to prevent the threat and top event.

Prevention controls

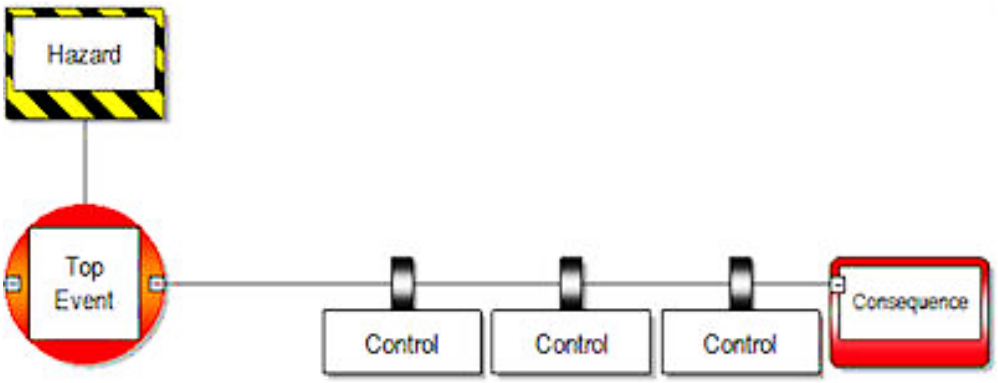
Any measure taken which acts against some undesirable force or intention, in order to maintain a desired state.



Similar to prevention controls, on the right-hand side of the top event, controls are added that show how the scenario is to be managed in order to stop an accident from occurring.

Recovery controls

These controls are considered to reduce the likelihood of the top event developing into a consequence as well as mitigating the severity of the consequence.



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