Republic of the Philippines
CIVIL AVIATION AUTHORITY OF THE PHILIPPINES

Advisory Circular

AC 139-AS/SA-01/17

AERONAUTICAL STUDY (SAFETY ASSESSMENT)

May 2017

Advisory Circulars (AC) are intended to provide recommendations and guidance, illustrate a means-but not necessarily the only means of complying with regulatory requirements, or to explain certain regulatory requirements by providing interpretative and explanatory materials.

CAAP will generally accept that when the provisions of an Advisory Circular have been met, compliance with the relevant regulatory obligations has been satisfied.

Where an AC is referred to in a "Note" within regulatory documentation, the AC remains as a guidance material.

ACs should always be read in conjunction with the referenced regulations.

Record of Amendment

Version/ Revision Number	Chapter Changed	Pages Replaced	Signature	Date

Table of Contents

1. PURPOSE

1.1 The purpose of this Advisory Circular (AC) is to provide supplementary guidance to aerodrome operators on the conduct of aeronautical studies. It provides guidance on what is acceptable to the Civil Aviation Authority of the Philippines (CAAP) to demonstrate compliance with the requirements of the Civil Aviation Regulation Governing Aerodromes (CAR Aerodromes) and the Manual of Standards for Aerodromes (MOS).

1.2 This AC explains parts of an aeronautical study including the methodology for safety assessment. By comprehensively addressing all the suggested parts, the aerodrome operator should be able to complete an aeronautical study to assess the viability of solutions to an aeronautical problem. An aeronautical problem may refer to an issue related to:

(a) operational regulations such as lack of procedures, insufficient maintenance programs and competency issue; or
(b) design regulations, such as terrain of object penetrating the Obstacle Limitation Surfaces (OLS), insufficient strip and Runway End Safety Area (RESA) (dimensions and/or quality), insufficient runway/taxiway separation and lack of or wrongly designed visual aids.

1.3 Attachment A to this AC contains a suggested checklist with the requirements to be included in an aeronautical study. The checklist can be used by the aerodrome operator as a guide to ascertain that all the requirements have been taken into consideration and documented in the aeronautical study. However, not all the requirements found in Attachment A will be applicable to every aeronautical study conducted. The aerodrome operator should therefore examine each requirement carefully to determine what is applicable.

2. APPLICABILITY

This AC applies to operators of all aerodromes under the certification, registration and permit-to-operate programmes.

3. STATUS OF THIS AC

Advisory Circulars (ACs) are numbered to reflect the regulatory basis, the abbreviated title of the circular, the serial number of the circular issued for that regulation and year of issue (and the revision status for the AC as appropriate). In this case, the regulatory bases are CAR-Aerodromes and MOS for Aerodromes represented by number 139 (consistent with previously issued ACs related to aerodromes). The abbreviated title AS/SA with the serial number 01 as the first guidance material to be issued on aeronautical study. Consequently, the status of this AC is AC 139-AS/SA-01/17.

CAPTAIN JIM C. SYDIONGCO
Director General
Civil Aviation Authority of the Philippines

4. INTRODUCTION

3.1 An aeronautical study is a study of an aeronautical problem to identify possible solutions, and to select a solution that is acceptable without degrading safety. A comprehensive aeronautical study allows both the aerodrome operator and the CAAP to be convinced that safety and regularity of operations of aircraft are not compromised in any way.

3.2 Where an aerodrome operator is not able to comply with any standard stipulated in the MOS, an aeronautical study may be conducted to assess the impact of deviations from the standards and recommended practices. The purpose of such studies is to present assessments of alternative means of ensuring the safety of aircraft operations, to estimate the effectiveness of each alternative and to recommend procedures to compensate for the deviation.

3.3 An aeronautical study is most frequently undertaken during the planning of a new airport or new airport facility, or during the certification of an existing aerodrome or subsequently, when the aerodrome operator applies for an exemption, as a result of development or a change in the aerodrome operational conditions from a specific standard contained in the MOS.

3.4 Aerodrome operators should consult their stakeholders, senior management and affected divisions/departments in their organizations prior to the conduct of an aeronautical study. These consultations would allow the proposed deviation to be viewed from different perspectives and the different parties involved would be aware of the proposed deviation. The aeronautical study should also be approved by the senior management of the organization before it is submitted to CAAP for acceptance.

3.5 Aerodrome operators should note that the CAAP official(s) may choose to participate in the conduct of an aeronautical study as an observer where appropriate.

5. OBJECTIVES

4.1 The objectives of an aeronautical study are as follows:

(a) to study the impact of deviations from the standards;
(b) to present alternative solutions to ensure the level of safety remains acceptable;
(c) to estimate the effectiveness of each alternative; and
(d) to recommend operating procedures/restrictions or other measures to compensate for the deviation.

6. PARTS OF AN AERONAUTICAL STUDY

(a) Aim of the Study;
(b) Background;
(c) Safety Assessment;
(d) Recommendations;

(e) Conclusion; and
(f) Monitoring of the Deviation.

5.1 Aim of the Study

5.1.1 The aim of the study should be explicitly stated. It should:

a. Address the safety concerns;
b. Identify safety measures to be put in place to ensure safe aircraft operations in an aerodrome; and
c. Make reference to the specific standard in the MOS which the study is meant to address.

5.1.2 An example to illustrate this would be as follows:

"The aim of this aeronautical study is to address the operation of Code F aircraft in a Code 4E airport, <name of airport> and to put in place <list of safety measures> necessary to ensure safe operation of Code F aircraft in <name of airport> with reference made to <reference to specific standard>... "

5.2 Background

5.2.1 Information on the current situation faced by the aerodrome operator, current procedures that have been put in place and other relevant details should be clearly stated and explained in this sub-section. Clear explanation should be provided, particularly on the following:

a. What is the current situation?
b. Where are the areas that will be affected by the proposed deviation?
c. When will the operator be able to comply with the specific standard if it is due to development of the aerodrome?
d. Why is there a need to review the current processes and procedures?
e. How will the proposed deviation affect the operation of aircraft at the aerodrome?

5.2.2 An example to illustrate this would be as follow:

"Currently, <name of airport> is Code 4E airport with some Code 4F capabilities. These Code 4F capabilities includes <list of the Code 4F capabilities>... <Name of airport> is required to handle Code F aircraft by <proposed date> and the following <list of affected areas> will be affected. Development of the <affected areas> is proposed to commence on <proposed date> and to be completed by <proposed date>. By then, <name of airport> will be upgraded to a Code 4F airport.

Upgrading <name of airport> from Code 4E to Code 4F airport requires the reviewing <name of processes and procedures that need to be reviewed> to ensure safe aircraft operation.

In addition, during this development, operation of aircraft at <name of airport> will be affected in the following ways..."

5.3 Safety Assessment

5.3.1 Safety assessment is the identification, analysis and elimination, and/or mitigation of risks to an acceptable level of safety. This should be in accordance with the aerodrome Safety Management System (SMS) that is required to be put in place by the aerodrome operator - a key aerodrome certification requirement.

5.3.2 The primary objective of a safety assessment is to assess the impact of a safety concern such as a design change or deviation in operational procedures at an existing aerodrome.

5.3.3 Such a safety concern can often impact multiple stakeholders; therefore, safety assessments often need to be carried out in a cross-organizational manner, involving experts from all the involved stakeholders. Prior to the assessment, a preliminary identification of the required tasks and the organizations to be involved in the process is conducted.

5.3.4 The method to conduct a safety assessment is detailed in *Attachment B*.

5.4 Recommendations

5.4.1 To allow the aerodrome operator and CAAP to be convinced and assured that the proposed deviation will not pose a drop in the level of safety, the aerodrome operator should recommend operating procedures/restrictions or other measures that will address any safety concerns. In addition, the aerodrome operator should estimate the effectiveness (through trials, surveys, simulations etc.) of each recommendation listed so as to identify the best means to address the proposed deviation.

5.4.2 The aerodrome operator should also ensure that the affected parties are well informed of such changes. The notification procedure including process flow, time frame and different means of notification such as the Aeronautical Information Publication (AIP) and Notice to Airmen (NOTAM) should be included in the study.

5.4.3 An example to illustrate this would be as follow:

"The following are some of the operating procedures/restrictions or other measures as well as their measured effectiveness, which could be adopted to ensure safe aircraft operations in <name of airport>:

<Name of the operating procedures/restrictions or other measures and their corresponding measured effectiveness>

The notification procedure to the affected parties is as follows:

Description of the notification procedure including process flow, time frame *and different means of notification>*

5.5 Conclusion

5.5.1 The aerodrome operator, after taking into account all the necessary considerations listed above, should be able to summarize and conclude the results of the aeronautical study, and come to a decision on any safety measures that should be adopted. The aerodrome operator should also specify a date to put in place all the necessary safety measures and show how they maintain the same level of safety with the recommended safety measures mentioned in the aeronautical study.

5.5.2 An example to illustrate this would be as follow:

"The results of this aeronautical study have concluded that <the proposed deviation> will indeed pose a drop in the level of safety. However, by adopting <type of the safety measures>, this drop in the level of safety can be safely addressed... These safety measures will be put in place on <proposed date> to address the proposed deviation. With these safety measures put in place, <to explain how to maintain the same level of safety>... "

5.6 Monitoring of the Deviation

5.6.1 After the completion of the aeronautical study, the aerodrome operator should monitor the status of the deviation and ensure that the implemented recommendations have been effectively carried out, and that the level of safety is not compromised at any time.

5.6.2 An example would be as follow:

"<Name of the aerodrome operator> will monitor the deviation's status <fixed period of time> and ensure the safety measures has been effectively carried out and the level of safety is not compromised at any time. <Name of the aerodrome operator> will review the safety assessment process, if required..."

5.6.3 For temporary deviations, the aerodrome operator should also notify CAAP after the deviation has been corrected.

7. APPROVAL OF AERONAUTICAL STUDY

Only the CAAP may accept the recommendations of an aeronautical study. Where notification to third parties is deemed to be a requirement, it is the responsibility of aerodrome operator to ensure advice is published in appropriate Aeronautical Information Service documents. Such publication depends on consideration of the need for a pilot to be made aware of potentially hazardous conditions.

8. REFERENCES

CAR- Aerodromes
CARANS Part 01 – Aerodrome and Air Navigation Service Safety Oversight
Manual of Standards for Aerodrome, 2nd Edition
MC 19-16 SMS Requirements for Aerodrome Operators, 2016
ICAO Annex 14, Volume I – Aerodrome Design and Operations
ICAO Doc 9774 - Manual on Certification of Aerodromes
ICAO Doc 9859 – Safety Management Manual
ICAO Doc 9981 - Procedures for Air Navigation Services-Aerodrome

9. QUERIES

If there are any queries with regard to this Advisory Circular, please contact:
Aerodrome Registration Certification Inspection Division
Aerodrome and Air Navigation Safety Oversight Office
Civil Aviation Authority of the Philippines
Email:aansoo.agadiv@gmail.com

10. ACKNOWLEDGEMENT

The AANSOO of the Civil Aviation Authority of the Philippines acknowledges the valuable information from the ICAO guidance materials from which this advisory circular is adopted.

11. COPIES OF THIS AC

The Regulatory Safety Standards Division of AANSOO makes ACs available to the public through the Internet. These ACs may be found through the CAAP home page (www.caap.gov.ph). A printed copy of this and other ACs can also be requested from the Aerodrome and Air Navigation Safety Oversight Office (AANSOO), Civil Aviation Authority of the Philippines, MIA Road, Pasay City 1301, Telefax: (632) 944-2037.

ATTACHMENT A

Checklist for Aeronautical Study

NOTE: The purpose of this Attachment A is to provide aerodrome operators with a suggested checklist for reviewing of an aeronautical study. Aerodrome operators may use this checklist as a guide for developing an aeronautical study tailored to his individual situation.

The suggested checklist for reviewing of an aeronautical study is as shown below.

Checklist for Aeronautical Study	Yes	No	Remarks
1. Aim of the study including (a) Address safety concerns, (b) Identify safety measures, and (c) Make reference to specific SARP to MOS;	☐	☐	
2. Consultation with stakeholders, senior management team and divisions/ departments affected;	☐	☐	
3. The study is approved by a senior executive of the organization;	☐	☐	
4. Background Information on the current situation;	☐	☐	
5. Proposed date for complying with the SARPs, if the deviation is due to development of the aerodrome;	☐	☐	
6. Safety assessment including identification of hazards and consequences and risk management;	☐	☐	
7. The safety assessment used in the study (E.g. hazard log, risk probability and severity, risk assessment matrix, risk tolerability and risk control/mitigation);	☐	☐	
8. Recommendations (including operating procedures/ restrictions or other measures to address safety concern) of the aeronautical study and how the proposed deviation will not pose a drop in the level of safety;	☐	☐	
9. Estimation of the effectiveness of each recommendation listed in the aeronautical study;	☐	☐	
10. Notification procedure including process flow, time frame and the publication used to promulgate the deviation;	☐	☐	
11. Conclusion of the study;	☐	☐	
12. Monitoring of the deviation; and	☐	☐	
13. Notification to CAAP once the temporary deviation has been corrected.	☐	☐	

ATTACHMENT B
PROCESS OF SAFETY ASSESSMENT

I. BASIC STEPS OF SAFETY ASSESSMENT

A safety assessment is initially composed of four basic steps:

a) definition of a safety concern and identification of the regulatory compliance;
b) hazard identification and analysis;
c) risk assessment and development of mitigation measures; and
d) development of an implementation plan for the mitigation measures and conclusion of the assessment.

A. Safety concern and identification of the regulatory compliance

Any perceived safety concern is to be described in detail. It is first analyzed to determine whether it is retained or rejected. If rejected, the justification for rejecting the safety concern is to be provided and documented.

Compliance with the appropriate provisions in the regulations applicable to the aerodrome is evaluated and documented.

The corresponding areas of concern are identified before proceeding with the remaining steps of the safety assessment, with all relevant stakeholders. If a safety assessment was conducted previously for similar cases in the same context at an aerodrome where similar characteristics and procedures exist, the aerodrome operator may use some elements from that assessment as a basis for the assessment to be conducted. Nevertheless, as each assessment is specific to a particular safety concern at a given aerodrome the suitability for reusing specific elements of an existing assessment is to be carefully evaluated.

B. Hazard identification

Hazards related to infrastructure, systems or operational procedures are initially identified using methods such as brain-storming sessions, expert opinions, industry knowledge, experience and operational judgment. The identification of hazards is conducted by considering:

a) accident causal factors and critical events based on a simple causal analysis of available accident and incident databases;
b) events that may have occurred in similar circumstances or that are subsequent to the resolution of a similar safety concern; and
c) potential new hazards that may emerge during or after implementation of the planned changes.

Hazards and its associated risks, potential outcomes or consequences and control/mitigation measures should be recorded in a hazard log when information becomes available. This log should be constantly updated throughout the aeronautical study life-cycle *(See Table A)*.

Table A: Hazard log

Note: The purpose of this Table A is to provide aerodrome operations with a suggested hazard log for safety assessment of an aeronautical study. Aerodrome operators may use this log as a guide to formulate his own log. This log should be constantly updated throughout the aeronautical study life cycle.

A sample hazard log for safety assessment of an aeronautical study is as shown below:

S. N°	Type of operation or activity	Generic hazard	Specific components of the hazard	Hazard-related consequences	Existing defences to control safety risk(s) and safety risk index	Further action to reduce safety risk(s) and resulting safety risk index
1	*Aircraft operation*	*Operation of Code 4F aircraft in <name of airport>. Code F aircraft using runway for landing and takeoff…..*		☐ *Wing tip collision at <parking bay numbers>.* ☐ *Loss of control of aircraft during pushback/towing operations.*	☐ *Use of wing walkers;* ☐ *Aircraft to taxi at <speed value>.* ☐ *Training of staff for pushback/towing operations;* ☐ *Restrictions on other aircraft movements within <parking bay number>* *Safety risk index: 3C* *Safety risk tolerability: Tolerable*	☐ *Conduct trials to study the effectiveness of the implementation.* ☐ *Resulting risk index: 2E* *Safety risk index: 2D* *Safety risk tolerability: Acceptable*

The appropriate safety objective for each type of hazard should be defined and detailed. This can be done through:

a) reference to recognized standards and/or codes of practices;
b) reference to the safety performance of the existing system;
c) reference to the acceptance of a similar system elsewhere; and
d) application of explicit safety risk levels.

Safety objectives are specified in either quantitative terms (e.g. identification of a numerical probability) or qualitative terms (e.g. comparison with an existing situation). The selection of the safety objective is made according to the aerodrome operator's policy with respect to safety improvement and is justified for the specific hazard.

C. Risk assessment and development of mitigation measures

The level of risk of each identified potential consequence is estimated by conducting a risk assessment *(See Risk Assessment Method below)*. This risk assessment will determine the severity of a consequence (effect on the safety of the considered operations) and the probability of the consequence occurring and will be based on experience as well as on any available data (e.g. accident database, occurrence reports).

Risk control/mitigation measures should be developed to address the potential hazard or to reduce the risk probability or severity of the consequence. There are three broad categories for risk control/mitigation and they are as follows:

a) **Avoidance** - the operation or activity is cancelled as the risks exceed the benefits of continuing the operation or activity;
b) **Reduction** -- **t**he frequency of the operation or activity is reduced, or action is taken to reduce the magnitude of the consequences of the accepted risks; and
c) **Segregation of exposure** - action is taken to isolate the effects of the consequences of the hazard or build-in redundancy to protect against it.

All risk mitigation measures are evaluated for the effectiveness of their risk management capabilities. The exposure to a given risk (e.g. duration of a change, time before implementation of corrective actions, traffic density) is taken into account in order to decide on its acceptability.

D. Development of an implementation plan and conclusion of the assessment

The implementation plan includes time frames, responsibilities for mitigation measures as well as control measures that may be defined and implemented to monitor the effectiveness of the mitigation measures.

II. ACCEPTANCE OF A SAFETY ASSESSMENT

CAAP analyses the safety assessment and verifies that:

a) appropriate coordination has been performed between the concerned stakeholders;
b) the risks have been properly identified and assessed, based on documented arguments (e.g. physical or Human Factors studies, analysis of previous accidents and incidents);
c) the proposed mitigation measures adequately address the risk; and
d) the time frames for planned implementation are acceptable.

III. RISK ASSESSMENT METHOD

The risk assessment takes into account the probability of occurrence of a hazard and the severity of its consequences; the risk is evaluated by combining the two values for severity and probability of occurrence.

Each identified hazard must be classified by probability of occurrence and severity of impact. This process of risk classification will allow the aerodrome to determine the level of risk posed by a particular hazard. The classification of probability and severity refers to potential events.

The severity classification includes five classes ranging from "catastrophic" (class A) to "not significant" (class E). The examples in the table below, adapted from Doc 9859 and 9981 with aerodrome-specific examples, serve as a guide to better understand the definition.

The classification of the severity of an event should be based on a "credible case" but not on a "worst case" scenario. A credible case is expected to be possible under reasonable conditions (probable course of events). A worst case may be expected under extreme conditions and combinations of additional and improbable hazards. If worst cases are to be introduced implicitly, it is necessary to estimate appropriate low frequencies.

Severity classification scheme with examples
(adapted from Doc 9981 and Doc 9859 with aerodrome-specific examples)

SEVERITY	MEANING	VALUE	EXAMPLE
Catastrophic	— Equipment destroyed — Multiple deaths	A	– collision between aircraft and/or other object during take-off or landing
Hazardous	— A large reduction in safety margins, physical distress or a workload such that the operators cannot be relied upon to perform their tasks accurately or completely — Serious injury — Major equipment damage	B	– runway incursion, significant potential for an accident, extreme action to avoid collision – attempted take-off or landing on a closed or engaged runway – take-off/landing incidents, such as undershooting or overrunning
Major	— A significant reduction in safety margins, a reduction in the ability of the operators 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	– runway incursion, ample time and distance (no potential for a collision) – collision with obstacle on apron/ parking position (hard collision) – person falling down from height – missed approach with ground contact of the wing ends during the touchdown

			– large fuel puddle near the aircraft while passengers are on-board
Minor	— Nuisance — Operating limitations — Use of emergency procedures — Minor incident	D	– hard braking during landing or taxiing – damage due to jet blast (objects) – expendables are laying around the stands – collision between maintenance vehicles on service road – breakage of drawbar during pushback (damage to the aircraft) – slight excess of maximum take-off weight without safety consequences – aircraft rolling into passenger bridge with no damage to the aircraft needing immediate repair – forklift that is tilting – complex taxiing instructions / procedures
Negligible	— Few consequences	E	– slight increase in braking distance – temporary fencing collapsing because of strong winds – cart losing baggage

Another example of a graduated scale on severity based on different aspects

SEVERITY	PEOPLE	ASSETS	ENVIRONMENT	REPUTATION
Catastrophic	Fatality +	Loss of an aircraft, and/or part of the airport infrastructure	Long-term impact contamination (radioactivity, poisoned groundwater, ecosystem destroyed)	Impact in such a way that community is not using the airport for an extended period of time
Hazardous	Severe injury requiring medical treatment	Serious damage to an aircraft, long term disruption of airport services	Short-term impact contamination (ecosystem impacted but not destroyed)	Impact in such a way that community is lessening the use of the airport for an extended period

				of time
Major	Injury requiring medical treatment	Damage to an aircraft which can be quickly repaired, short term disruption of airport services	Contained impact (fuel spillage,…)	Impact in such a way that community is lessening the use of the airport for a short period of time
Minor	Minor injury not requiring treatment	Minor damage to an aircraft which does not suspend the operation, minor disturbance of airport services	Light impact	Impact in such a way that community questions the reliability of the airport
Negligible	No injury	No damage	No impact	No damage

The probability classification includes five classes ranging from "extremely improbable" (class 1) to "frequent" (class 5) as shown in the next table.

The classes presented in the table of Probability of Occurrence are defined with quantitative limits. It is not the intention to assess frequencies quantitatively; the numerical value serves only to clarify the qualitative description and support a consistent expert judgment.

The classification refers to the probability of events per a period of time. This is reasoned through the following:

a) many hazards at aerodromes are not directly related to aircraft movements;
b) the assessment of hazards occurrence probabilities can be based on expert judgement without any calculations.

Risk Probability

Probability of Occurrence		
Qualitative Definition	***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**

Example of a graduated scale on probability based on quantitative criteria

PROBABILITY	CRITERIA	CRITERIA
Frequent	Occurs once every month or 5,600 commercial operations or 336,000 enplanement	At least once every 1,000 aircraft movements
Occasional	Occurs once every year or 68,000 commercial operations or 4,000,000 enplanement	Once every 10,000 aircraft movements
Remote	Occurs once every 5 years or 340,000 commercial operations or 20,000,000 enplanement	Once every 100,000 aircraft movements
Improbable	Occurs once every 10 years or 680,000 commercial operations or 40,000,000 enplanement	Once every 1,000,000 aircraft movements
Extremely Improbable	Occurs once every 20 years or 1,360,000 commercial operations or 80,000,000 enplanement	Less than once in 1,000,000 aircraft movements

Given that the prioritization is dependent on both probability and severity of the events, the prioritization criteria will be two-dimensional. Three main classes of hazard mitigation priority are defined in Risk Assessment Matrix:

a) hazards with high priority — intolerable;
b) hazards with mean priority — tolerable;
c) hazards with low priority — acceptable.

The risk assessment matrix has no fixed limits for tolerability but points to a floating assessment where risks are given risk priority for their risk contribution to aircraft operations. For this reason, the priority classes are intentionally not edged along the probability and severity classes in order to take into account the imprecise assessment.

Risk Assessment Matrix

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 Improbability (1)	1A	1B	1C	1D	1E

Risk Tolerability

Suggested Criteria	**Assessment Risk Index**	**Suggested Criteria [Acceptability/Action Required]**
Intolerable Region	**5A, 5B, 5C, 4A, 4B, 3A**	Unacceptable under the existing circumstances. [Do not permit any operation until sufficient control measures have been implemented to reduce risk to an acceptable level.]
Tolerable Region	**5D, 5E, 4C, 4D, 4E, 3B, 3C, 3D 2A, 2B, 2C 1A**	Acceptable based on risk mitigation. It may require management decision.
Acceptable Region	**3E, 2D, 2E, 1B, 1C, 1D, 1E**	Acceptable