KINGDOM OF BAHRAIN
Ministry of Transportation
and Telecommunications

مملكة البحرين
وزارة المواصلات والاتصالات

CIVIL AVIATION PUBLICATION

CAP-111

Dated:18 July 2024

Guidance Material on GRF for Aerodrome Operators

INTENTIONALLY LEFT BLANK

RECORD OF AMENDMENTS

Amendments				
Serial No.	**Issue No.**	**Revision No.**	**Date**	**Description**
01	01	0	05.August.2021	Initial Issue
02	01	0	18 July 2024	Change Logo (Cover)

FOREWORD

Kingdom of Bahrain as a Contracting State to the Convention on International Civil Aviation has an obligation to the international community to ensure that Civil Aviation activities under its jurisdiction are carried out in strict compliance with the Standards and Recommended Practices contained in the nineteen Annexes to the Convention on International Civil Aviation in order maintain the required aviation standards.

As per the standards of the Annex 14 to the Convention, States are required to Implement Global Reporting Format (GRF). Therefore, Aviation Safety and Security Directorate has developed this Civil Aviation Publication (CAP) to introduce and explain the essentials of International Civil Aviation Organization (ICAO) Global Reporting Format (GRF) for runway condition reporting. It is expected of the concerned aerodrome operators to take this CAP as a reference/guideline in order comply with the required regulations and standards for the implementation of GRF. Further, all aerodrome personnel involved directly or indirectly with runway condition assessment should also be aware of it and are encouraged to utilize this CAP to their specific operations.

The Civil Aviation Affairs shall, without any prior notice, change the content of this CAP as deemed appropriate.

……

Director
Aviation Safety and Security
Civil Aviation Affairs
Kingdom of Bahrain

TABLE OF CONTENTS

Chapter 1: OVERVIEW

1.1. Introduction

Runway accidents and incidents are aviation's number one safety-related risk category. A primary factor contributing to this risk includes runway excursions during take-off or landing in adverse weather conditions; the runway surface may be contaminated by snow, ice, slush or water, with a potentially negative impact on an aircraft's braking, acceleration or control ability. ICAO therefore introduced a methodology to harmonize the assessment and reporting of runway surface conditions. In 2008, the ICAO Friction Task Force commenced its work to address the shortfalls in the accuracy and timeliness of the assessment and reporting methods provided for in the present ICAO provisions and guidance material. Their goal was to develop provisions for the reporting of runway surface conditions and develop guidance on the operational requirements for airplane performance and for the assessment of runway surface conditions, including friction level. This resulted in the introduction of the new GRF transitioning from assessing the surface friction characteristics to runway surface condition assessment with consistent relation to aircraft braking performance.

This methodology will improve the flight crew's assessment of the take-off and landing performance of aeroplanes. The report is intended to cover conditions found in all climates and provides a means for aerodrome operators to rapidly and correctly assess the conditions, whether they be a wet runway, snow, slush, ice or frost, including rapidly changing conditions such as those experienced during winter or in tropical climates. The information can be provided to the flight crew via various channels, such as the revised SNOWTAM

The reporting process begins with the evaluation of a runway by human observation, normally performed by airport operations staff. A description of the surface contaminant based on its type, depth and coverage for each third of the runway, is then used to obtain a runway condition code (RWYCC) specific to the conditions observed.

The evaluation and associated RWYCC are used to complete a standard report called the runway condition report (RCR) which is then forwarded to air traffic control (ATC) and the aeronautical information service (AIS) for onward dissemination to pilots.

A fundamental change in the GRF is the introduction of the RWYCC—a code number describing the runway surface condition reflecting the runway braking capability as a function of the surface conditions. The RCAM is a basic tool for the RWYCC assessment from the observed runway surface conditions, also mapping the RWYCC to perceived braking action (BA) and lateral control of the aircraft during the landing roll. RWYCC and the type, the depth and the coverage of the runway contamination described by the RWYCC are consequently reported via the new comprehensive standardized Runway Condition Report (RCR)

1.2. Objective

The purpose of this document is to introduce and provide information pertinent to the implementation of Global Reporting Format (GRF) for assessment and reporting of runway surface conditions so that all the concerned stakeholders viz., aerodrome operators, airlines operators apply it to their respective operations.

1.3. The concept of the RCR is premised on:

1.3.1 An agreed set of criteria used in a consistent manner for runway surface condition assessment, plane(performance) certification and operational performance calculation;

1.3.2 A unique RWYCC, linking the agreed set of criteria with the aircraft landing and takeoff performance table, and related to the breaking action (BA)experienced and eventually reported by the flight crews;

1.3.3 Reporting of the contaminant type and depth that is relevant to take-off performance;

1.3.4 A standardized common terminology and phraseology for the description of runway surface conditions that can be used by Aerodrome operators (AO)inspection personnel, air traffic controllers (ATCOs), aircraft operators and flight crew; and

1.3.5. Globally harmonized procedures for the establishment of the RWYCC with a built-in flexibility to allow for local variations to match the specific weather, infrastructure and other particular conditions

1.4. Scope

Guidelines in this CAP is applicable to the aerodromes that are not exposed to Ice or Snow and are affected with only water as the contaminant.

1.5. Reference Documents

1.5.1 ICAO Annex 6, 11th Edition, July 2018: Operation Of Aircraft - Part I - International Commercial Air Transport– Aero planes

1.5.2 ICAO Annex 11, 15th Edition, July 2018: Air Traffic Services;

1.5.3 ICAO Annex 14, 8th Edition, July 2018 – Volume –I: Aerodrome Design and Operations

1.5.4 ICAO Annex 15, 16th Edition, July 2018: Aeronautical Information Services

1.5.5 ICAO Circular 355, Assessment, Measurement and Reporting of Runway Surface

1.5.6 ICAO Doc 9981: Procedures for Air Navigation Services – Aerodromes

1.5.7 ICAO Doc 10066: Procedures for Air Navigation Services (PANS) — Aeronautical Information Management; and

1.5.8 ICAO Doc 4444: Procedures for Air Navigation Services (PANS) - Air Traffic Management

1.6. Definitions and Abbreviations

Aeronautical information circular (AIC). A notice containing information that does not qualify for the origination of a NOTAM or for inclusion in the AIP, but which relates to flight safety, air navigation, technical, administrative or legislative matters.

Aeronautical information management (AIM). The dynamic, integrated management of aeronautical information through the provision and exchange of quality-assured digital aeronautical data in collaboration with all parties.

Aeronautical information service (AIS). A service established within the defined area of coverage responsible for the provision of aeronautical data and aeronautical information necessary for the safety, regularity and efficiency of air navigation.

Air-report. A report from an aircraft in flight prepared in conformity with requirements for position, and operational and/or meteorological reporting.

Air traffic service. A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service).

Automatic terminal information service (ATIS). The automatic provision of current, routine information to arriving and departing aircraft throughout 24 hours or a specified portion thereof:

Data link-automatic terminal information service (D-ATIS). The provision of ATIS via data link.

Voice-automatic terminal information service (Voice-ATIS). The provision of ATIS by means of continuous and repetitive voice broadcasts.

Braking action. A term used by pilots to characterize the deceleration associated with the wheel braking effort and directional controllability of the aircraft.

Coefficient of friction. A dimensionless ratio of the friction force between two bodies to the normal force pressing these two bodies together.

Contaminant. A deposit (such as snow, slush, ice, standing water, mud, dust, sand, oil and rubber) on an aerodrome pavement, the effect of which is detrimental to the friction characteristics of the pavement surface.

Critical tire-to-ground contact area. An area (approximately 4 square meters for the largest aircraft currently in service) which is subject to forces that drive the rolling and braking characteristics of the aircraft, as well as directional control.

ESDU scale. A grouping of hard runway surfaces based on macro texture depth.

Friction. A resistive force along the line of relative motion between two surfaces in contact

Friction characteristics. The physical, functional and operational features or attributes of friction arising from a dynamic system.

Grooved or porous friction course runway. A paved runway that has been constructed and maintained with lateral grooving or a porous friction course (PFC) surface to improve braking characteristics when wet in compliance with the Aerodrome Design Manual (Doc 9157) or equivalent.

Hazard. A condition or an object with the potential to cause injuries to personnel, damage to equipment or structures, loss of material, or reduction of the ability to perform a prescribed function.

Landing distance available (LDA). The length of runway which is declared available and suitable for the ground run of an aeroplane landing.

NOTAM. A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

Runway. A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

Runway condition assessment matrix (RCAM). A matrix allowing the assessment of the runway condition code, using associated procedures, from a set of observed runway surface condition(s) and pilot report of braking action.

Runway condition code (RWYCC). A number describing the runway surface condition to be used in the runway condition report. The purpose of the runway condition code is to permit an operational aeroplane performance calculation by the flight crew.

Runway condition report (RCR). A comprehensive standardized report relating to runway surface conditions and its effect on the aeroplane landing and take-off performance.

Runway surface condition(s). A description of the condition(s) of the runway surface used in the runway condition report which establishes the basis for the determination of the runway condition code for aeroplane performance purposes. The runway surface conditions used in the runway condition report establish the performance requirements between the aerodrome operator, aeroplane manufacturer and aeroplane operator.

Dry runway. A runway is considered dry if its surface is free of visible moisture and not contaminated within the area intended to be used.

Wet runway. The runway surface is covered by any visible dampness or water up to and including 3 mm deep within the intended area of use.

Slippery wet runway. A wet runway where the surface friction characteristics of a significant portion of the runway have been determined to be degraded.

Contaminated runway. A runway is contaminated when a significant portion of the runway surface area (whether in isolated areas or not) within the length and width being used is covered by one or more of the substances listed in the runway surface condition descriptors.

Runway surface condition descriptors. One of the following elements on the surface of the runway:

Note.— The descriptions for e) i) to e) viii) are used solely in the context of the runway condition report and are not intended to supersede or replace any existing WMO definitions.

i)**Compacted snow**. Snow that has been compacted into a solid mass such that aeroplane tires, at operating pressures and loadings, will run on the surface without significant further compaction or rutting of the surface.

ii)**Dry snow**. Snow from which a snowball cannot readily be made.

iii)Frost. Frost consists of ice crystals formed from airborne moisture on a surface whose temperature is below freezing. Frost differs from ice in that the frost crystals grow independently and therefore have a more granular texture

Note 1.— Below freezing refers to air temperature equal to or less than the freezing point of water (0 degree Celsius).

Note 2.— Under certain conditions frost can cause the surface to become very slippery and it is then reported appropriately as reduced braking action.

iv)Ice. Water that has frozen or compacted snow that has transitioned into ice, in cold and dry conditions.

v)Slush. Snow that is so water-saturated that water will drain from it when a handful is picked up or will splatter if stepped on forcefully.

vi)Standing water. Water of depth greater than 3 mm.

Note.—Running water of depth greater than 3 mm is reported as standing water by convention.

vii)Wet ice. Ice with water on top of it or ice that is melting.

Note— Freezing precipitation can lead to runway conditions associated with wet ice from an aeroplane performance point of view. Wet ice can cause the surface to become very slippery. It is then reported appropriately as reduced braking action in line with procedures in the PANS-Aerodromes (Doc 9981).

viii)**Wet snow**. Snow that contains enough water content to be able to make a well-compacted, solid snowball, but water will not squeeze out.

Safety* The state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.

Safety management system (SMS)* A systematic approach to managing safety, including the necessary organizational structures, accountability, responsibilities, policies and procedures.

Significant change. A change in the magnitude of a hazard, which leads to a change in the safe operation of the aircraft.

Skid resistant. A runway surface that is designed, constructed and maintained to have good water drainage, which minimizes the risk of hydroplaning when the runway is wet and provides aircraft braking performance shown to be better than that used in the airworthiness standards for a wet, smooth runway.

SNOWTAM. A special series NOTAM given in a standard format providing a surface condition report notifying the presence or cessation of hazardous conditions due to snow, ice, slush, frost, standing water or water associated with snow, slush, ice or frost on the movement area.

Surface friction characteristics. The physical, functional and operational features or attributes of friction that relate to the surface properties of the pavement and can be distinguished from each other.

Note. Friction coefficient is not a property of the pavement surface but a system response from the measuring system. Friction coefficient can be used to evaluate the surface properties of the pavement provided that the properties belonging to the measuring system are controlled and kept stable.

Chapter 2: Assessment of Runway Surface Condition

2.1. Runway Condition Assessment Matrix (RCAM)

2.1.1 The Runway Condition Assessment Matrix (RCAM) (Table 2.1) is the method by which the aerodrome operator determines a Runway Condition Code (RWYCC) for each runway third, whenever water, snow, slush, ice or frost is present on the runway surface.

RUNWAY CONDITION ASSESSMENT MATRIX (RCAM)			
Assessment Criteria		Down grade assessment criteria	
Runway Condition code (RWYCC)	Runway surface description	Aeroplane deceleration or directional control observation	Pilot report of runway breaking action
6	● DRY	-----	----
5	● WET (the runway surface is covered by any visible on dampness or water up to and including 3mm	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal	GOOD

	depth)		
4	N/A	Braking deceleration OR directional control is between Good and Medium	GOOD TO MEDIUM
3	● WET('slippery wet' runway	Braking deceleration is noticeably reduced for the wheel breaking effort applied OR directional control is noticeably reduced	MEDIUM
2	**More than 3mm depth of water :** ● STANDING WATER	Braking deceleration OR directional control is between Medium and Poor	MEDIUM TO POOR
` 1		Braking deceleration is significantly reduced for the wheel breaking effort applied OR directional control is significantly reduced	POOR
0		Braking deceleration is minimal to nonexistent for the wheel breaking effort applied OR directional control is uncertain	LESS THAN POOR

Table 2.1

2.1.2 The RCAM applies only to paved (asphalt and concrete) runway surfaces and does not apply to unpaved or partially paved surfaces.

2.1.3 When runway condition information is reported in thirds, a RWYCC is to be reported. Conversely, if the runway condition information is not entered for each runway third, then the RWYCC will not be reported.

2.1.4 The first column of RCAM is for Assessment Criteria that consists of a Runway Surface Description and a Runway Condition Code. The Runway Surface Descriptions in each category are linked to the corresponding Runway Condition Code based on their effect on aeroplane braking performance.

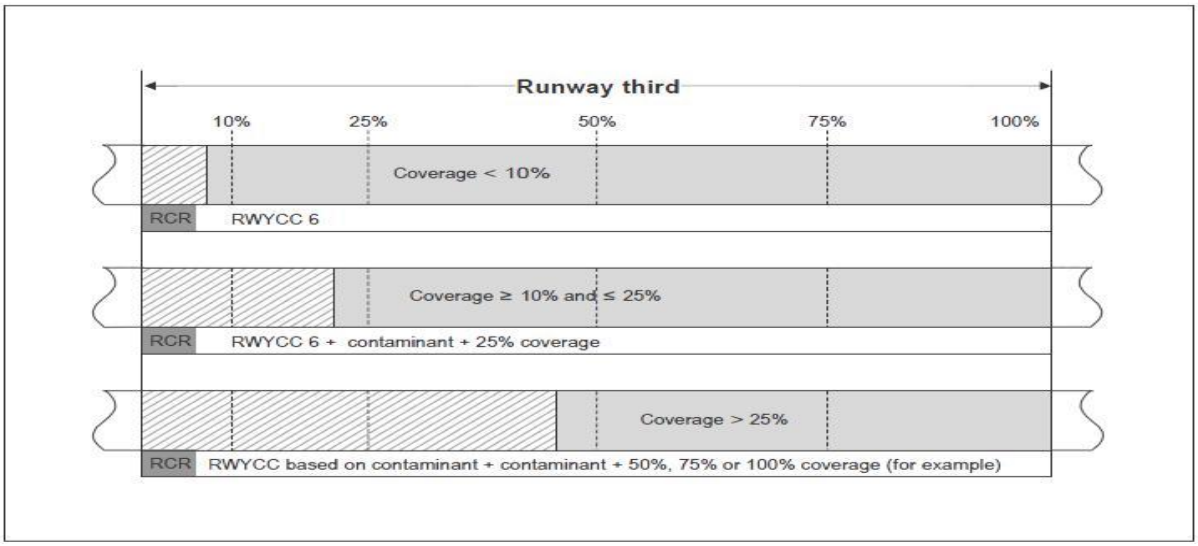
2.1.5 The Runway Surface Description column lists contaminants that are directly correlated to aeroplane landing performance. The description sections, ranging in terms of slipperiness, are categorized based on type and depth of contaminant and outside air temperature.

2.1.6 Runway Condition Codes in RCAM represent the runway condition description based on defined terms and increments. Use of these codes harmonizes with ICAO Annex 14, providing a standardized "shorthand" format for reporting runway condition, which can be used by pilots to determine landing performance parameters.

2.1.7 A RWYCC is determined using the RCAM based on type and depth of contaminant, percentage coverage and outside air temperature. When available, the runway surface temperature should be used.

2.2. Determination of RWYCC:

When the runway third contains a single contaminant, the RWYCC for that third is based directly on that contaminant in the RCAM (Table 2.1) as follows:



2.2.1 If the contaminant coverage for that third is less than 10 per cent, a RWYCC of 6 is to be generated for that third and no contaminant is to be reported. If all thirds have less than 10 percent contaminant coverage, no report is generated; or

2.2.2 If the per cent contaminant coverage for that third is greater than or equal to 10 percent and less than or equal to 25 per cent, a RWYCC of 6 is to be generated for that third and the contaminant reported at 25 per cent coverage; or

2.2.3 If the per cent contaminant coverage for that third is greater than 25 per cent, the RWYCC for that third shall be based on the contaminant present.

2.3. Downgrade Assessment Criteria

2.3.1 The RWYCC is initially determined through use of the RCAM.

2.3.2 The aerodrome operator should consider downgrading a RWYCC when pilot reports or other observations reveal that the runway surface is more slippery than the RWYCC that was initially determined.

2.3.3 The aerodrome operator should exercise vigilance and downgrade the RWYCC when appropriate so that flight crews are provided with a RWYCC that best reflects the actual slipperiness of the runway.

2.3.4 A pilot report of braking action should be taken into consideration for downgrading purposes

2.3.5 When previous pilot braking action report have indicated GOOD or MEDIUM

2.3.5 When previous pilot braking action reports have indicated GOOD or MEDIUM braking action, two consecutive pilot braking action reports of POOR indicates that surface conditions may be deteriorating. In this situation, the airport or aerodrome operator should conduct a runway assessment prior to the next operation.

2.4. Upgrade Assessment Criteria

2.4.1 Given the variability of certain contaminants, there are circumstances when a RWYCC of 0 or 1 may not be as slippery as the RWYCC generated by the RCAM

2.4.2 An assigned RWYCC of 5, 4, 3, or 2 cannot be upgraded.

2.4.3 The airport or aerodrome operator may upgrade a RWYCC of 0 or up to but no higher than a RWYCC of 3.

Note. Since the aerodromes in the kingdom of Bahrain are not exposed to Ice or Snow, upgrading of RWYCC cannot be done there.

Chapter 3: Runway Condition Reporting – RCR

The Runway condition Reporting comprises of two sections: (i) Aeroplane Performance Calculation Section (ii) Situational awareness section

Table 3.0 lists the sources of the provided information in the order in which it appears in the RCR.

RUNWAY CONDITION REPORT	
Aeroplane performance calculation section	
Information	Source
Aerodrome location indicator	Doc 7910, Location Indicators
Date and time of assessment	UTC time
Lower runway designation number	Actual runway
RWYCC for each runway third	Assessment based on the RCAM and associated procedures
Per cent coverage contaminant for each runway third	Visual observation for each runway third
Depth of loose contaminant for each runway third	Visual observation assessed for each runway third, confirmed by measurements when

	appropriate
Condition description (contaminant type) for each runway third	Visual observation for each runway third
Width of runway to which the RWYCCs apply if less than published width	Visual observations while at the runway and information from local procedures/snow plan
Situational awareness section	
Reduced runway length	NOTAM
Drifting snow on the runway	Visual observation while at the runway
Loose sand on the runway	Visual observation while at the runway
Chemical treatment on the runway	Known application of the treatment. Visual observation of residual chemicals on the runway.
Snowbanks on the runway	Visual observations while at the runway
Snowbanks on taxiway	Visual observations while at the taxiway
Snowbanks adjacent to the runway penetrating level/profile set in the aerodrome snow plan	Visual observations while at the runway, confirmed by measurements when appropriate
Taxiway conditions	Visual observations, AIREPs, reports by other aerodrome personnel, etc.
Apron conditions	Visual observations, AIREPs, reports by other aerodrome personnel, etc.
State-approved and published use of measured friction coefficient	Dependent upon the standard set or agreed by the State
Plain language remarks using only allowable characters in capital letters	Any additional significant operational information to be reported

Table 3.0

3.1 Aeroplane Performance Calculation Section:

This section basically consists of eight elements that are described in the diagram as shown in Figure 3.1 where M, C and O stand for Mandatory, Conditional and Optional.

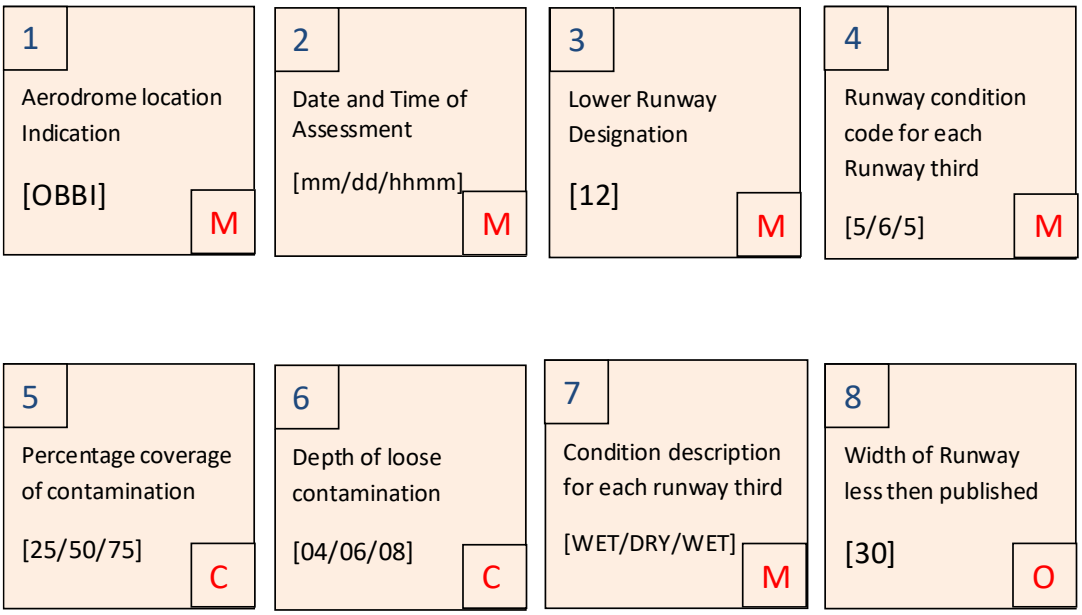


Figure 3.1

3.1.1 Aerodrome Location Indicator: This is the first element of RCR that clearly specifies the Aerodrome for which the RCR is prepared. A four-letter ICAO location indicator assigned to the aerodrome is provided to this element of RCR. For example, OBBI shall be required to be provided to this element for Bahrain International Airport

3.1.2 Date and time of Assessment: This is the second element of RCR to which Coordinated Universal Time (UTC) is provided complying the time frame 'mm/dd/hh mm'. For example, if the Runway Condition is assessed at 7:30 am on August 15 at OBBI, the corresponding RCR up to 2nd element shall be as follows:

RCR OBBI 08150430

Note: Bahrain time is 3 hours ahead of UTC time. Date shall be corresponding to UTC.

3.1.3 Lower Runway Designation: The Runway shall be considered to be of three equal segments and the runway condition shall be assessed for each third of the runway considering the assessment from lower runway designation side

For example, the assessment of runway condition at OBBI should be carried out from lower designation side 'RWY 12 L' as shown above in Figure 3.2. This is third element of RCR to which 12L shall be required to be provided by Bahrain International Airport

3.1.4 Runway Condition Code for each Runway Third; after assessment of condition for each runway third, a corresponding Runway Condition code (RWYCC) shall be assigned to them from Runway Condition Assessment Matrix (RCAM) and shall be separated by slash '/'. For example, if 1st, 2nd and 3rd Runway third from lower designation is dry, Wet and slippery wet, this element of RCR shall be described as: 6/5/3

3.1.5 Percent Coverage Contaminant for each Runway Third

For assessed percent of coverage of contamination for each runway third, a corresponding value in column B of the Table 3.1 shall be reported to this fifth element of RCR. The value for each Runway Third shall be separated by slash '/'

Assessed percent	Percent to be Reported	RWYCC
≤9	NR	6
10-25	25	6
26-50	50	Based on Contaminant/ Descriptor
51-75	75	
76-100	100	

Table 3.1

3.1.6 Depth of Loose Contaminants: The depth in millimeter (mm) of any loose contaminant is required to be provided for each Runway third. Such values shall be expressed in two digits form and be separated from each other by slash '/'. The Table 3.2 describes the contaminant applicable for RCR with respect to the RCAM.

Contaminant	Valid values to be reported	Significant change
STANIDING WATER	Any assessed value rounded to Nearest integer and higher than 03. (3mm)	3 mm up to and including 15mm

Table 3.2

For STANDING WATER ,04 (4mm) is the minimum depth value at and above which the depth is reported

(From 3mm and below the runway third is considered WET)

Note: The significant change shows the depth when standing water becomes hazard and reporting with reassessment is to be done again

3.1.7 Condition Description for each Runway third

The surface condition of each Runway Third is required to be provided to this element of RCR in terms of various surface descriptors given in RCAM like DRY, WET, STANDING WATER. They shall be in capital letter and be separated by slash '/'

3.1.8 Width of Runway to which the RWYCC apply

If the width of the runway to which the RWYCC applies is less than the published width, it should be provided through this element of RCR.

3.1.9 RCR Information String

RCR information string that consists of all eight elements as described above is expressed as below:

RCR	_____	_____	_ _	_/_/_	__/___/___	_/_/_	…./…/…	….
	Aerodrome	**Date &Time**	**RWY**	**RWYCC**	**%Coverage of Contaminant**	**Depth**	**Contaminant type**	**Reduced RWY Width**

EXAMPLE:

Runway assessment done at 7.30am on 15 August 2020 at OBBI shows that First Third is 20% Wet, Second Third is 5% Wet and Third Third has 40% water of maximum 5mm depth.

ICAO Location Indicator for BIA: OBBI

UTC timeframe for 7.30 am: month 08, day 15, time 04h 30m

Lower Runway Designation: RWY 12L

Referring table, 20% damp is to be reported as 25% WET and RWYCC is assigned as 6 for First Third, 5% damp is not required to be reported thereby reported as NR and RWYCC is

assigned as 6 for Second Third. And 40% water is to be reported as 50% STANDING WATER and RWYCC is assigned as 2 for Third Runway Third.

Since the depth of contaminant like STANDING WATER only above 3mm is to be reported, the reporting of the same shall be **NR** for the First and Second Runway Third. Hence, the RCR for this case will be as follows:

RCR OBBI 08150430 12 6/6/2 25/NR/50 NR/NR/5 WET/DRY/STANDING WATER

3.2 Situational Awareness Section

This section provides information on various eleven elements that have been shown in the Table 3.3 below. The information to be provided must be in the order of listed eleven elements.

3.3 Situational Awareness Section Table

Situational Awareness Section		
1.	Reduced Runway length	C
2.	Drifting snow on the runway	O
3.	Loose sand on the runway	O
4.	Chemical treatment on the runway	M
5.	Snowbanks on the runway	O
6.	Snowbanks on the taxiway	O
7.	Snowbanks adjacent to the runway	O
8.	Taxiway conditions	O
9.	Apron conditions	O
10.	State-approved and published use of measured friction	O
11.	State-approved and published use of measured friction	O

Note: Aerodromes BIA is not exposed to ice or snow and, therefore, may consider only Taxiway conditions and Apron conditions for reporting. The reporting format shall be as follows:

Situational Awareness Format: TWY name POOR. APRON name POOR

Example

TWY A POOR. APRON MIDDLE POOR

Chapter 4: Training

4.1. Requirement

4.1.1 Aerodrome operators shall ensure that their personnel are adequately trained to perform their duties.

4.1.2 It is recommended that aerodrome operators develop a training program for all personnel who will assess and report runway conditions. This training program should include: i) Initial Training ii) Annual Recurrent training

4.2. Initial Training

4.2.1 For the purpose of Initial Training, aerodrome operators should utilize the information in this AC to develop and conduct training which includes both:

4.2.1.1 a review of the theoretical concepts; and

4.2.1.2 practical exercises

4.2.2 Initial training should include, but not limited to the following topics:

4.2.1.1 Aerodrome familiarization, including aerodrome markings, signs and lighting

4.2.1.2 Aerodrome procedures as described in the aerodrome manual

4.2.1.3 Aerodrome emergency plan

4.2.1.4 NOTAM initiation procedures

4.2.1.5 Aerodrome driving rules

4.2.1.6 Air traffic control procedures on the movement area

4.2.1.7 Radiotelephone operating procedures

4.2.1.8 Phraseology used in aerodrome control, including the ICAO spelling alphabet

4.2.1.9 Aerodrome inspection procedures and techniques

4.2.1.10 Assessment and reporting of runway surface friction characteristics

4.2.1.11 Calibration, maintenance and use of runway friction measurement device

4.2.1.12 Low visibility procedures

4.2.1.13 Basics of the Global Reporting Format (GRF)

4.2.1.14 Runway Condition Assessment Matrix Components (RCAM)

4.2.1.15 Determination along with Downgrade and Upgrade of RWYCC

4.2.1.16 Runway Condition Reporting (RCR)

4.2.1.17 Measurement technique and assessment

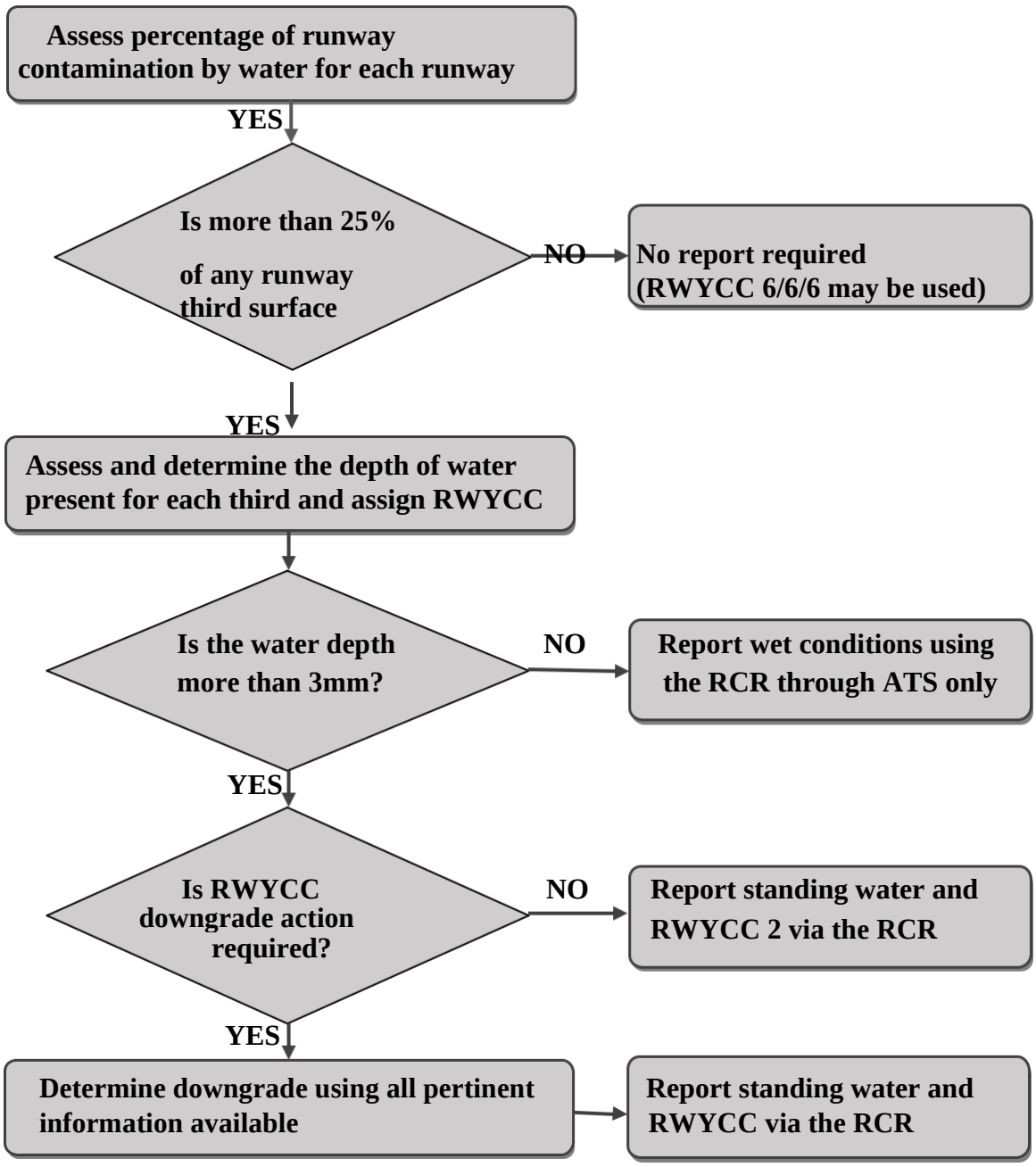
4.3. Annual Recurrent Training

For the purpose of Annual Recurrent Training, aerodrome operators should utilize the information in this AC to develop and conduct appropriate training for their personnel which:

4.3.1 focuses primarily on the practical aspects of runway condition assessment and reporting; and

4.3.2 incorporates “lessons learned” from the previous year(s) operations

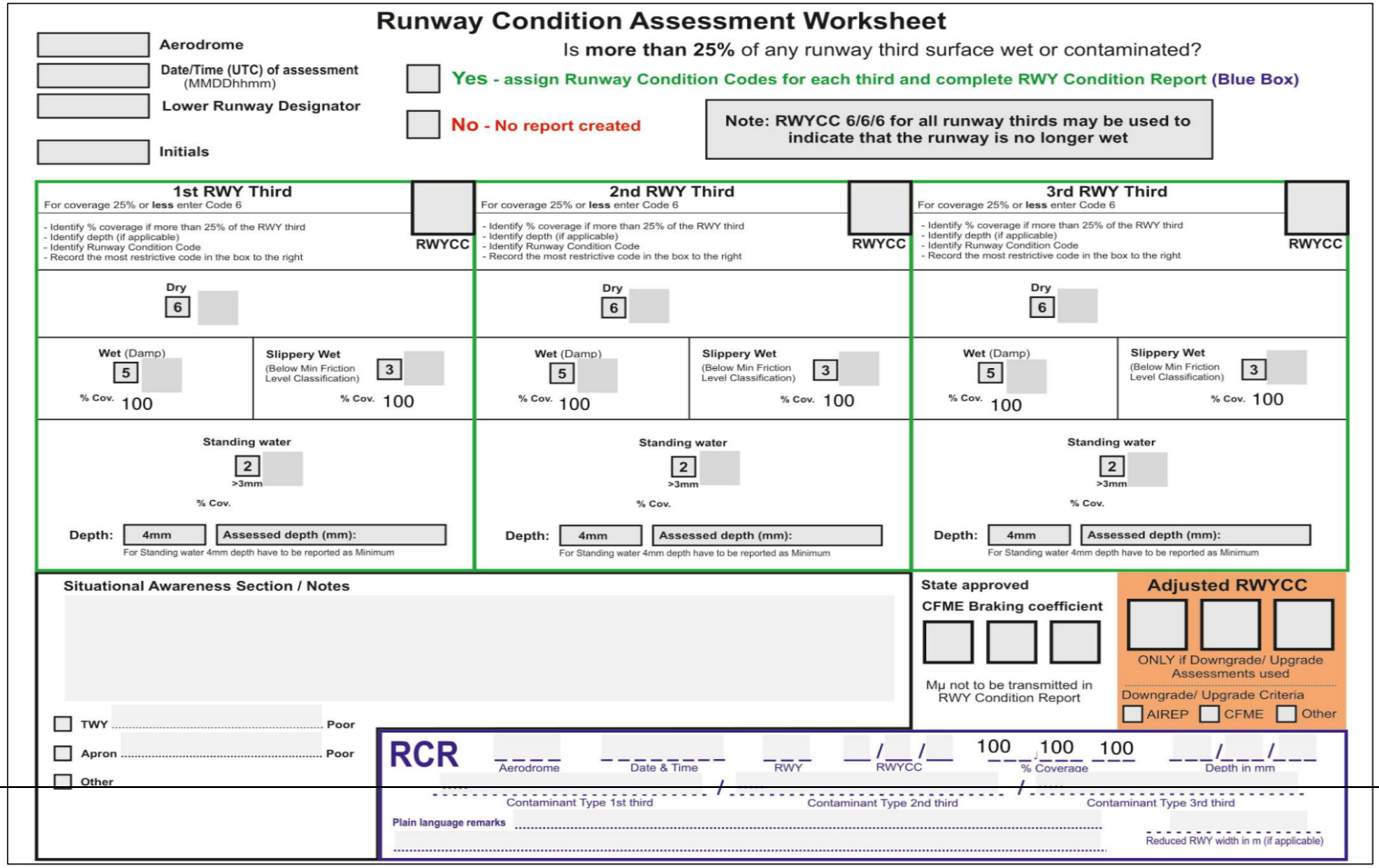
APPENDIX A



Process Flowchart for Runway Surface Condition Assessment

INTENTIONALLY LEFT BLANK

APPENDIX-B



Runway Condition Assessment Worksheet

Aerodrome

Date/Time (UTC) of assessment (MMDDhhmm)

Lower Runway Designator

Initials

Is **more than 25%** of any runway third surface wet or contaminated?

☐ **Yes** - assign Runway Condition Codes for each third and complete RWY Condition Report (Blue Box)

☐ **No** - No report created

Note: RWYCC 6/6/6 for all runway thirds may be used to indicate that the runway is no longer wet

1st RWY Third	2nd RWY Third	3rd RWY Third
For coverage 25% or **less** enter Code 6	For coverage 25% or **less** enter Code 6	For coverage 25% or **less** enter Code 6
- Identify % coverage if more than 25% of the RWY third - Identify depth (if applicable) - Identify Runway Condition Code - Record the most restrictive code in the box to the right	- Identify % coverage if more than 25% of the RWY third - Identify depth (if applicable) - Identify Runway Condition Code - Record the most restrictive code in the box to the right	- Identify % coverage if more than 25% of the RWY third - Identify depth (if applicable) - Identify Runway Condition Code - Record the most restrictive code in the box to the right
RWYCC	RWYCC	RWYCC
Dry 6	Dry 6	Dry 6
Wet (Damp) 5 — % Cov. 100	Wet (Damp) 5 — % Cov. 100	Wet (Damp) 5 — % Cov. 100
Slippery Wet (Below Min Friction Level Classification) 3 — % Cov. 100	Slippery Wet (Below Min Friction Level Classification) 3 — % Cov. 100	Slippery Wet (Below Min Friction Level Classification) 3 — % Cov. 100
Standing water 2 >3mm — % Cov.	Standing water 2 >3mm — % Cov.	Standing water 2 >3mm — % Cov.
Depth: 4mm / Assessed depth (mm):	Depth: 4mm / Assessed depth (mm):	Depth: 4mm / Assessed depth (mm):
For Standing water 4mm depth have to be reported as Minimum	For Standing water 4mm depth have to be reported as Minimum	For Standing water 4mm depth have to be reported as Minimum

Situational Awareness Section / Notes

☐ TWY ..... Poor

☐ Apron ..... Poor

☐ Other

State approved CFME Braking coefficient

Mμ not to be transmitted in RWY Condition Report

Adjusted RWYCC

ONLY if Downgrade/ Upgrade Assessments used

Downgrade/ Upgrade Criteria ☐ AIREP ☐ CFME ☐ Other

RCR ____ (Aerodrome) ____ (Date & Time) ____ (RWY) __/__/__ (RWYCC) 100 100 100 (% Coverage) ___/___/___ (Depth in mm)

Contaminant Type 1st third / Contaminant Type 2nd third / Contaminant Type 3rd third

Plain language remarks .....

Reduced RWY width in m (if applicable)

End of Document------