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# Assessment of Runway Surface Conditions Process

ICAO ESAF

*Regional Office Nairobi*

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## Overview

- Runway condition assessment process
- Upgrading/Downgrading RWYCC
- Monitoring
- Final closing RCR



## Objective

- Explain under what circumstances the airport operator must conduct a runway condition assessment and issue a RCR
- Describe the changes that required new issuance of RCRs
- Describe the circumstances under which a RWYCC may be downgraded or upgraded
- Explain the importance of continuous monitoring of runway conditions



# Runway condition assessment process

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## Reporting of the Runway surface condition

- Reporting, in compliance with the runway condition report, shall commence **when a significant change in runway surface condition occurs** due to water, snow, slush, ice or frost.



## Reporting of Runway Surface Condition

- Reporting of the runway surface condition should continue **to reflect significant changes until the runway is no longer contaminated.**
- When this situation occurs, the aerodrome will issue a runway condition report that states the runway is wet or dry as appropriate.



# Runway condition assessment process

A change in the runway surface condition used in the runway condition report is considered significant whenever there is:

- any change in the RWYCC
- any change in contaminant type
- any change in reportable contaminant coverage according to Table II-1-1
- any change in contaminant depth according to Table II-1-2; and
- any other information, for example a pilot report of runway braking action, which according to assessment techniques used, are known to be significant.

**Table II-1-1. Percentage of coverage for contaminants**

<i>Assessed per cent</i>	<i>Reported per cent</i>
10 – 25	25
26 – 50	50
51 – 75	75
76 – 100	100

**Table II-1-2. Depth assessment for contaminants**

<i>Contaminant</i>	<i>Valid values to be reported</i>	<i>Significant change</i>
STANDING WATER	04, then assessed value	3 mm up to and including 15 mm
SLUSH	03, then assessed value	3 mm up to and including 15 mm
WET SNOW	03, then assessed value	5 mm
DRY SNOW	03, then assessed value	20 mm



# Runway condition assessment process

A change in reportable contaminant coverage :

**Table II-1-1. Percentage of coverage for contaminants**

<i>Assessed per cent</i>	<i>Reported per cent</i>
10 – 25	25
26 – 50	50
51 – 75	75
76 – 100	100

If the percentage coverage changed from 22 to 28% a new RCR should be issued

A change in the percentage coverage for contaminants that results in a different “25” multiple is a significant change and requires a new runway condition report.



# Runway condition assessment process

## A change in contaminant depth :

Table II-1-2. Depth assessment for contaminants

<i>Contaminant</i>	<i>Valid values to be reported</i>	<i>Significant change</i>
STANDING WATER	04. then assessed value	3 mm up to and including 15 mm
SLUSH	03. then assessed value	3 mm up to and including 15 mm
WET SNOW	03. then assessed value	5 mm
DRY SNOW	03. then assessed value	20 mm

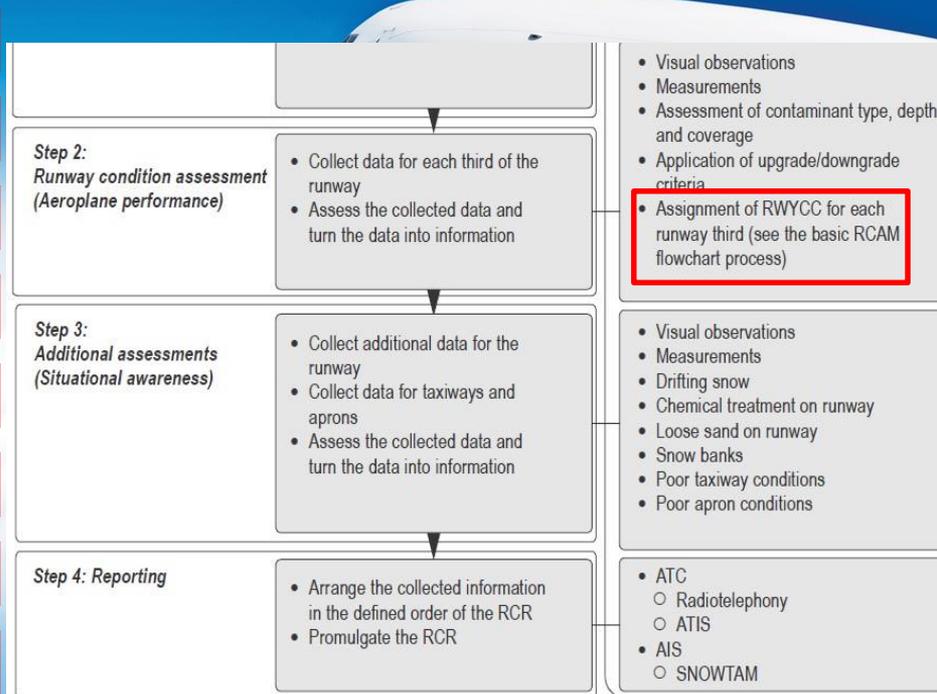
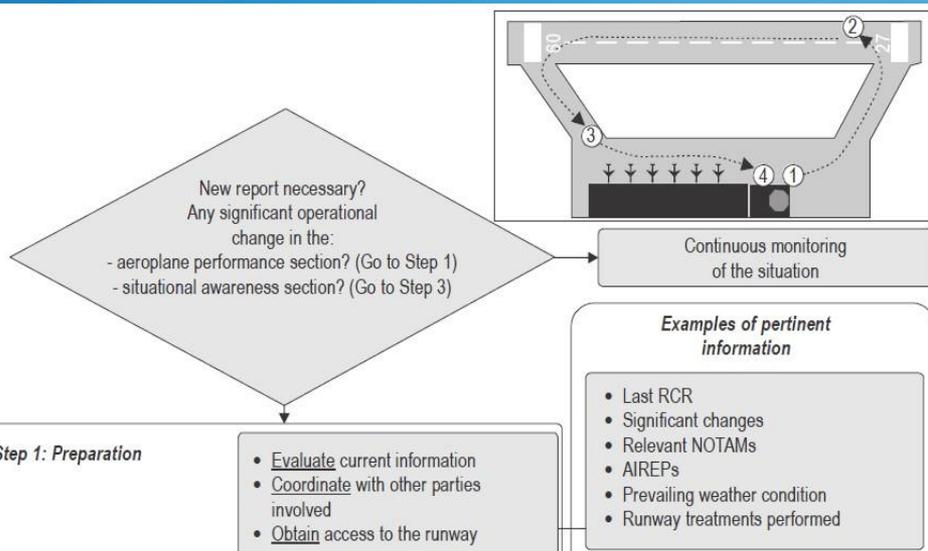
Minimum depth at and above which the depth is reported.

Once the depth is over than the minimum depth for reporting, if it changes by the amounts shown here, then a new RCR should be issued



# Runway condition assessment process

## Generic process





# Runway condition assessment process

## The basic RCAM flowchart process

### Step 1: RCAM applicability

The philosophy of the RCR is that the aerodrome operator assesses the runway surface conditions whenever water, snow, slush, ice or frost are present on an operational runway. Therefore, the first step in assigning the correct RWYCC is the assessment of the existing contaminants.

Is there water, snow, slush, ice or frost on any runway third (winter conditions)?

Go to Flowchart A

NO

Is there water not associated with winter conditions on any runway third?

Go to Flowchart B

NO

### Reported information

• No report created

### Step 2: Apply coverage criteria

Assess percentage of coverage of runway contamination for each runway third

Is 10% or more of any runway third surface contaminated?

NO

• No report created

YES

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

NO

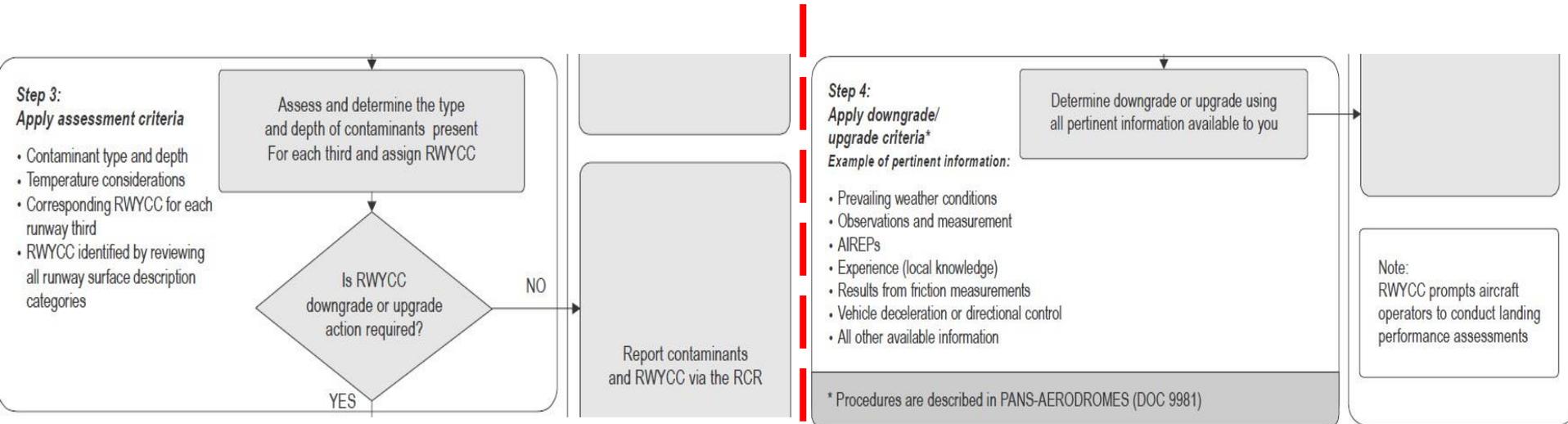
• Report contaminants and RWYCC 6 via the RCR for that particular runway third.

YES

### Reported information

# Runway condition assessment process

## The basic RCAM flowchart process





# Runway condition assessment process

## Assessing a runway and assigning a RWYCC

- The RWYCC is determined using the RCAM
- If 10 per cent or less area of a runway third is wet or covered by contaminant, a RWYCC 6 shall be reported.
- If the distribution of the contaminant is not uniform, the location of the area that is wet or covered by the contaminant is described in the plain language remarks part of the situational awareness section of the RCR.
- A description of the runway surface condition is provided using the contamination terms described in capital letters in the RCAM
- If multiple contaminants are present where the total coverage is more than 25 per cent but no single contaminant covers more than 25 per cent of any runway third, the RWYCC is based upon the judgment by trained personnel, considering what contaminant will most likely be encountered by the aeroplane and its likely effect on the aeroplane's performance.



# Upgrading/Downgrading RWYCC

- Can be made when all other observations, experience and local knowledge indicate to trained aerodrome personnel that the primary assignment of the RWYCC does not reflect the prevailing conditions accurately.
- Examples of aspects to be considered in assessing the runway slipperiness for the downgrade process:
  - prevailing weather conditions (stable sub-freezing temperature, dynamic conditions, active precipitation)
  - observations (information and source);
  - Measurements (friction measurements, vehicle behavior, shoe scraping)
  - experience (local knowledge); and
  - AIREPs.



# Upgrading/Downgrading RWYCC

- An assigned RWYCC 5, 4, 3 or 2 shall not be upgraded.
- An assigned RWYCC 1 or 0 can be upgraded using the following procedures and shall not be permitted to go beyond a RWYCC 3
  - if a properly operated and calibrated State-approved measuring device and all other observations support a higher RWYCC as judged by trained personnel;
  - the decision to upgrade RWYCC 1 or 0 cannot be based upon one assessment method alone. All available means of assessing runway slipperiness are to be used to support the decision;
  - when RWYCC 1 or 0 is upgraded, the runway surface is assessed frequently during the period the higher RWYCC is in effect to ensure that the runway surface condition does not deteriorate below the assigned code; and
  - d) variables that may be considered in the assessment that may affect the runway surface condition, include but are not limited to any precipitation conditions, changing temperatures, effects of wind, frequency of runway in use and type of aeroplane using the runway.



# Upgrading/Downgrading RWYCC

- Where available, the pilot reports of runway braking action should be taken into consideration as part of the ongoing monitoring process, using the following principle:
  - a) a pilot report of runway braking action is taken into consideration for downgrading purposes; and
  - b) a pilot report of runway braking action can be used for upgrading purposes only if it is used in combination with other information qualifying for upgrading.
- Two consecutive pilot reports of runway braking action of POOR shall trigger an assessment if an RWYCC of 2 or better has been reported.
- When one pilot has reported a runway braking action of **LESS THAN POOR**, the information shall be disseminated, a new assessment shall be made and the suspension of operations on that runway shall be considered.



# Monitoring

The airport operator should develop monitoring procedures which may include:

- Monitoring pavement physical conditions including contaminants types and depths
- Monitoring air traffic and pilot communications as it related to pilot reports of the portion of the runway used.
- Monitoring wheather patterns
- Increased self-inspections (reducing intervals between inspections)



## Final closing RCR

A final “closing” shall be made stating that RCR the runway is no longer contaminated :

- When the runway is no longer contaminated
- When there is less 10% coverage, by any form of visible moisture (in frozen, liquid or damp state)
- Example: when the runway surface has dried up to such an extent that there is less than 10% visible moisture left, the final RCR to be issued would be:  
**6/6/6 NR/NR/NR NR/NR/NR DRY/DRY/DRY**



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Thank You





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