Runway Condition Assessment Matrix (RCAM)				
Assessment Criteria		**Downgrade Assessment Criteria**		
Code	Runway Condition Description	**Mu (μ) [1]**	**Vehicle Deceleration Or Directional Control Observation**	**PIREP**
6	• Dry	40 or Higher	---	---
5	• Frost • Wet (Includes Damp) ***1/8" or less depth of:*** • Water • Slush • Dry Snow • Wet Snow		Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	Good
4	***-15ºC and Colder outside air temperature:*** • Compacted Snow	39 to 30	Braking deceleration OR directional control is between Good and Medium.	Good to Medium
3	• Wet ("Slippery when wet" runway) • Dry Snow or Wet Snow (Any depth) over Compacted Snow ***Greater than 1/8" depth of:*** • Dry Snow • Wet Snow ***Warmer than -15ºC outside air temperature:*** • Compacted Snow		Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	Medium
2	***Greater than 1/8" depth of:*** • Water • Slush	29 to 21	Braking deceleration OR directional control is between Medium and Poor.	Medium to Poor
1	• Ice [2]		Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	Poor
0	• Wet Ice [2] • Water on top of Compacted Snow [2] • Dry Snow or Wet Snow over Ice [2]	20 or Lower	Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	Nil

[1]The correlation of the Mu (μ) values with runway conditions and condition codes in the Matrix are only approximate ranges for a generic friction measuring device ***and are intended to be used only to downgrade a runway condition code.*** *Airport operators should use their best judgment when using friction measuring devices for downgrade assessments, including their experience with the specific measuring devices used.*

[2]*In some circumstances, these runway surface conditions may not be as slippery as the runway condition code assigned by the Matrix. The airport operator may issue a higher runway condition code (but no higher than code **3**) for each third of the runway if the Mu value for that third of the runway is 41 or greater obtained by a properly operated and calibrated friction measuring device,* ***and all other observations, judgment, and vehicle braking action support the higher runway condition code. The decision to issue a higher runway condition code than would be called for by the Matrix cannot be based on Mu values alone; all available means of assessing runway slipperiness must be used and must support the higher runway condition code.*** *This ability to raise the reported runway condition code to a code 1, 2, or 3 can only be applied to those runway conditions listed under codes 0 and 1 in the Matrix.*

The airport operator must also continually monitor the runway surface as long as the higher code is in effect to ensure that the runway surface condition does not deteriorate below the assigned code. The extent of monitoring must consider all variables that may affect the runway surface condition, including any precipitation conditions, changing temperatures, effects of wind, frequency of runway use, and type of aircraft using the runway. If sand or other approved runway treatments are used to satisfy the requirements for issuing this higher runway condition code, the continued monitoring program must confirm continued effectiveness of the treatment.

> ***Caution: Temperatures near and above freezing (e.g., at -3°C and warmer) may cause contaminants to behave more slippery than indicated by the runway condition code given in the Matrix. At these temperatures, airport operators should exercise a heightened level of runway assessment, and should downgrade the runway condition code if appropriate****.*

Definitions

Dry runway**.** For airplane performance purposes and use of this Matrix, a runway can be considered dry when no more than 25 percent of the runway surface area within the reported length and the width being used is covered by:

1. Visible moisture (including a damp runway), or
2. Frost, slush, snow (dry or wet), ice, or compacted snow.

Wet runway. For airplane performance purposes and use of this Matrix, a runway is considered wet when more than 25 percent of the runway surface area within the reported length and the width being used is covered by any visible dampness or any water up to and including 1/8-inch (3 mm) deep.

Contaminated runway. For airplane performance purposes and use of this Matrix, a runway is considered contaminated when more than 25 percent of the runway surface area within the reported length and the width being used is covered by any depth of slush, ice, dry or wet snow, or frost, or by water more than 1/8-inch (3 mm) deep. Definitions for each of these runway contaminants are provided below:

Dry snow. Snow that can be blown if loose, or that will not stick together to form a snowball using gloved hands.

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

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

Compacted snow. Snow that has been compressed into a solid mass such that the airplane tires, at operating pressures and loadings, will run on the surface without significant further compaction or rutting of the surface. Compacted snow may include a mixture of snow and embedded ice; if it is more ice than compacted snow, then it should be reported as either ice or wet ice, as applicable. A layer of compacted snow over ice should be reported as compacted snow.

Frost. Frost consists of ice crystals formed from airborne moisture that condenses 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. Heavy frost that has noticeable depth may have friction qualities similar to ice and downgrading the runway condition code accordingly should be considered. If driving a vehicle over the frost does not result in tire tracks down to bare pavement, the frost should be considered to have sufficient depth to consider a downgrade of the runway condition code.

Water. Water in a liquid state.

Ice. Frozen water.

Wet ice. Ice with a layer of water on top of it or ice that is melting.

Slippery when wet runway. A runway where a friction survey, conducted for pavement evaluation/friction deterioration per Advisory Circular 150/5320-12C (or later revision), shows that more than 25 percent of the runway length does not meet the minimum friction level classification specified in Table 3-2 of that AC. The airport operator should assign and report a runway condition code of 3 for all applicable thirds of the runway when wet under this condition. If less than 25 percent of the runway fails the friction evaluation, the airport operator should report runway condition codes of 5 for the applicable runway thirds when the runway is wet, and report the deteriorated condition of the runway through the normal airport NOTAM system.

Layered Contaminants. Definitions for the layered contaminants listed in the Matrix are simply a combination of the above definitions for each of the layered contaminants. For example, the definition of "Wet Snow over Ice" is "Snow that contains enough water content to be able to make a well-compacted, solid snowball, but water will not squeeze out" over "frozen water."

Percent Coverage and Reporting Contaminants

1. Report the percentage of the entire cleared portion of the runway surface that is covered by contaminant. If > 25% go to step 2. If ≤ 25% go to step 4.
2. Report a runway condition code for each third of the runway
3. Determine the runway condition code from the table, assigning the code associated with the most slippery (i.e., lowest code) contaminant (including wet) that covers more than 25% of the runway surface. If less than 25% of the surface is covered with contamination (or is wet) assign it a code 6.
    a. Small areas (i.e., less then 25% coverage) should be described in the remarks section of the runway surface condition report.
    b. If multiple contaminants are present where the total coverage is more than 25%, but no single contaminant covers more than 25%, choose the runway condition code based on your judgment, considering what contaminant will most likely be encountered by the airplane and its likely effect on the airplane's stopping ability. Use all the assessment tools available in determining the condition code to assign.
4. Provide a description of the most predominant contamination type using the contamination terms defined above. Any additional contamination types and percentage of their coverage of the runway surface should be provided in the remarks section of the runway surface condition report.
5. Runway surface condition reports of bare and dry (runway condition code 6/6/6) should not be disseminated via the NOTAM system unless requested. All other reports should be disseminated through the NOTAM system and other local procedures.

Example: The first third runway 28R at PIT is approximately 30% covered with ice, the middle third has approximately 50% dry snow over compacted snow, and the last third is approximately 10% ice, 20% wet snow of less than 1/8 inch depth, and 40% wet.

Runway surface condition report: PIT Rwy 28R 1/3/5 75% Dry Snow over Compacted Snow, (Remarks) first 3000 ft. 30% ice, last 3000 ft. 30% ice and wet snow