Snow and Ice Control Plan

Dallas/Fort Worth International Airport

‘Exhibit 1’ of the Airport Certification Manual

Original Date: 10/21/2016

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Introduction

The Dallas/Fort Worth International Airport (DFW) is located within a region of north Texas which is susceptible to snow and icing conditions. Typically, the snow and ice season occurs from December through February, with unexpected freezing precipitation possible in November through April.

Weather patterns indicate that the likelihood of a winter storm, usually associated with a frontal passage and drop in temperature, is likely to approach from the Northwest. In many cases, the DFW Metroplex may experience a variety of effects from no precipitation to several inches of snow. Icing conditions also may only occur in portions of the Metroplex, and then it may only affect bridges and elevated surfaces.

Chapter 1. Pre-Season Actions

1.1 Airport Preparation

a) Airport Management Meetings

Senior management of Airport Operations and DFW Energy, Transportation, & Asset Management (ETAM) leadership will typically initiate a meeting during the off-season to discuss the available equipment and material inventory, repair needs, staffing, budget, training, review previous year's issues, and any other pertinent information associated with snow and ice control and its plan (SICP).

b) Personnel Training

Airfield Operations and Energy, Transportation & Asset Management (ETAM) personnel receive annual, recurrent snow removal training prior to the start of the snow and ice season. All training for airport personnel is conducted by Airfield Operations and ETAM. Training records are maintained by Airfield Operations. Training includes but is not limited to:

- Formal classroom lectures/presentations, online modules, tabletop workshops and discussion periods to teach the contents of the SICP
- Hands-on training for equipment operators on how their equipment works as well as practice runs under typical operational scenarios
- Instruction on airfield familiarization that includes both day and night tours of the airfield and ensures an understanding of all surface markings, signs, and lighting
- Instruction for all personnel on proper communication procedures and terminology
- Training in following runway closure criteria for personnel responsible for closing and opening runways during snow events
- Areas designated as priority surfaces

c) Equipment Preparation

At a minimum of sixty (60) days prior to the normal snow season, the Vehicle Fleet Maintenance Supervisor inspects and prepares each piece of snow removal equipment. Required fluids, replacement parts, and snow removal equipment components are inventoried and stockpiled.

The airport's Certified Friction Measuring Equipment (CFME) is calibrated, updated, and certified prior to the start of the winter weather season.

1.2 Snow and Ice Control Committee (SICC) Meetings

The Vice President of Operations (VP Ops) chairs the Snow and Ice Control Committee (SICC). The SICC is a standing committee of representatives from air carriers serving DFW, FAA Airport Traffic Control and DFW Airport Board staff. The SICC's function is to establish priorities and to provide the guidance necessary to maintain safe operations.

During the off season, the Airport begins notifying tenants and airport users to review and provide comments to be discussed at the season kick-off meeting which occurs prior to the regular snow season.

The following topics, at a minimum, are discussed in a SICC meeting:

- Airport's preparedness for the winter weather season
- Updates to the airport's Snow and Ice Control Plan
- Snow and Ice Control equipment availability
- Priority 1, 2, and 3 pavement clearing areas
- Airfield pavement assessments
- NOTAMs
- Emergency Operations Center (EOC) activations
- Aircraft deicing operations

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Chapter 2. Post-Event/Season Actions

2.1 Post Event

After each snow event, airport management may host an after-action review meeting and invite key stakeholders to discuss any issues that have arisen from the event.

All members of the SICC are encouraged to provide feedback to airport management before, during, or following each snow event. After a significant event, a challenging operation, or as special circumstances dictate, a SICC meeting may be scheduled upon request of any member of the Committee.

2.2 Post Season

After each snow season a SICC meeting is held to review the snow season issues and recommendations for changes. The same topics as pre-season should be reviewed.

Chapter 3. Snow Removal Action Criteria

3.1 Activating Snow Removal Personnel

The Vice President of Operations (VP Ops), in collaboration with the Vice President of ETAM, declares the initiation of snow and ice response. The Assistant Vice President of Airfield Operations (AVP Ops) acts on the Vice President's behalf in their absence.

Once a snow and ice response is declared, the airport's Emergency Operations Center (EOC) is activated and staffed with resources to support the operation of the airport and provide command and control for the execution of the SICP.

The VP Ops or their designee is responsible for directing snow and ice removal or control. In coordination with ETAM, the size and composition of the work force to remain on duty as well as the deployment of personnel and equipment for actual operations is to be determined.

a) Weather Forecasting

DFW Airport relies on the services provided by contract weather services when formulating decisions regarding winter weather operations.

DFW Airport utilizes tools and predictions from the National Weather Service (NWS) to supplement in decision making for winter weather operations.

The Airport operates an in-pavement temperature system on Runways 17C/35C and 18L/36R and Taxiway Y between Taxiways HY and JY. This system plays a role in determining when to pretreat the runways with liquid anti-ice materials.

b) Triggers for Initiating Snow Removal Operations

Airfield Operations personnel will inspect all priority surfaces for contaminant accumulation during adverse weather and report findings to the EOC. The VP Ops or their designee will utilize airfield inspection results, PIREPs, runway temperature sensor data, CFME results, airfield historical experiences, and other pertinent information to determine when snow and ice control efforts should be initiated. Snow and ice control operations will be coordinated utilizing the priority maps (see Exhibits 1-4) and the determination of the VP Ops or their designee.

Personnel Responsibilities

a) Airfield Operations

Snow and ice control responsibilities are shared between multiple personnel within Airfield Operations. The VP Ops or their designee will manage, direct, and implement the plan, including the following responsibilities:

- Monitor weather forecasts and current conditions utilizing available resources
- Determine the needed response including the number of personnel required and initiating call-ins as needed
- Coordinate with other airport departments to determine when and where anti-icing and/or snow removal operations will take place on the priority surfaces
- Provide qualified personnel to perform pavement coefficient friction surveys using FAA-approved CFME or Decelerometer
- Provide escorts for ETAM equipment performing snow/ice removal or control activities
- Inspect airport surfaces for contaminants and report findings to the EOC
- Issue NOTAMs on snow and ice removal operations or treatment of airfield surfaces, closures, and openings of runways and taxiways, airfield condition reports and other pertinent information as may be required
- Maintain records of inspections, friction surveys, snow and ice removal operations or treatment, closure and openings of runways and taxiways, and other pertinent information as may be required
- Conduct SICP training for Airfield operations personnel and assist in training ETAM personnel as needed

b) ETAM

ETAM is responsible for operating all snow and ice control equipment and managing resources necessary for a snow and ice control operation. The Vice President of ETAM or their designee support the plan, including the following responsibilities:

- Prepare equipment and supplies to properly address snow and ice conditions
- Maintain an inventory of equipment and sustain a sufficient number of trained operators to be used in snow and ice control efforts
- Manage the available chemical and sand inventory and provide updated inventory numbers to the EOC as needed

- Initiate call-in of essential personnel as may be appropriate to provide snow/ice removal or control activities on airside and landside areas, and to provide, prepare, and stage snow control equipment
- Coordinate and communicate with Design, Code, and Construction (DCC) if additional equipment and personnel are needed to supplement ETAM operations
- Perform snow/ice removal or control operations in areas identified by Airfield Operations as needing treatment
- Manage the airport's Source Isolation Deice Site (SIDS) infrastructure in accordance with the DFW Aircraft Deice Operations Plan

c) Integrated Operations Center (IOC)

The Integrated Operations Center is responsible for assisting with the plan by coordinating resources and providing updates during a snow and ice control operation. The Vice President of the Integrated Operations Center or their designee support the plan, including the following responsibilities:

- Coordinate resources for obtaining up-to-date weather observations and forecasts
- Update Airport Board staff on any changes in the weather forecast, pavement conditions, and airfield status as deemed necessary
- Coordinate with Airfield Operations concerning snow/ice removal or control equipment status and availability

d) Emergency Management

Emergency Management is responsible for coordinating, activating, maintaining, and running the EOC. The Vice President of the Integrated Operations Center or their designee support the plan, including the following responsibilities:

- Manage the activation of the EOC in accordance with DFW activation levels
- Coordinate tabletop exercises for training essential personnel on snow and ice control activities

e) Environmental Affairs

Environmental Affairs has ownership of air, water, and environmental issues related to snow and ice events, including overseeing deicing pad clean-up efforts in accordance with the DFW Aircraft Deice Operations Plan.

f) Department of Public Safety

The Department of Public Safety (DPS) is responsible for staffing and maintaining Aircraft Rescue and Fire Fighting capabilities for DFW Airport. In support of this plan, DPS has the following responsibilities:

- Initiate call-in of essential personnel as may be appropriate for fire protection services
- Protect fire service equipment from the elements of weather and maintain ARFF readiness per established procedures
- Notify Airfield Operations of ARFF equipment outages resulting in an ARFF Index change
- Notify EOC and Airfield Operations of hazardous ARFF road conditions and determine alternate response routes if necessary. Possible relocation of ARFF equipment may be necessary to maintain response times

Upon conclusion of the need to protect the Airport from snow/icing conditions or when the forecast no longer indicates a threat of impending freezing precipitation, the snow and ice response is terminated, and appropriate notifications made.

3.2 Emergency Operations Center (EOC)

The EOC performs the following primary functions during snow and ice response:

- Provide command and control for the execution of the SICP
- Manage snow/ice clearing operations
- Serve as a resource for field conditions, status of equipment
- Monitor the field clearing operations, plan for the treatment/clearing of additional airfield pavement surfaces
- Ensure appropriate resources are coordinated for and available

3.3 Airfield Clearing Priorities

The following priorities are applied to snow and ice removal or control. Weather, pavement conditions, and operational priority determines the order of succession addressing airfield surfaces. Refer to Exhibits 1-4 for detailed maps.

a) Priority 1

- Runway 17R/35L & Taxiways L1, L2
  - Associated NAVAIDS and ARFF Routes
- Access Roads to ARFF Stations 1, 2, 3, and 4 (Airside)
- Taxiway EF between Taxiway K and Runway 17C/35C

- Taxiway EJ between Taxiway K and Taxiway M
- Taxiway EK between Taxiway K and Taxiway L
- Taxiway ER between Taxiway JS and Runway 17C/35C
- Taxiway K full length
- Taxiway C between Taxiway Y and Taxiway A
- Taxiway Y between Taxiway C and Taxiway L
- Taxiway Z between Taxiway K and Taxiway R
- Taxiway G between Taxiway Y and Taxiway WR
- Taxiway A between Taxiway A7 and Taxiway P
- Taxiway A7 between Runway 13R/31L and Taxiway A
- Taxiway HA between Taxiway A and Taxiway WR
- Taxiway WR between Taxiway G and Taxiway HA
- Taxilanes C, C1, C9, & WK
- UPS Cargo Ramp Taxilane
- Taxiway M between Taxiway EF and Taxiway ER
- Taxiway R1
- Taxiway P between East Air Freight Ramp and Taxiway Z
- Runway 17C/35C & Taxiway M1, M2*
    - Associated NAVAIDS and ARFF Routes

*Cleared after Runway 17R/35L and associated taxiways have been cleared

b) Priority 2

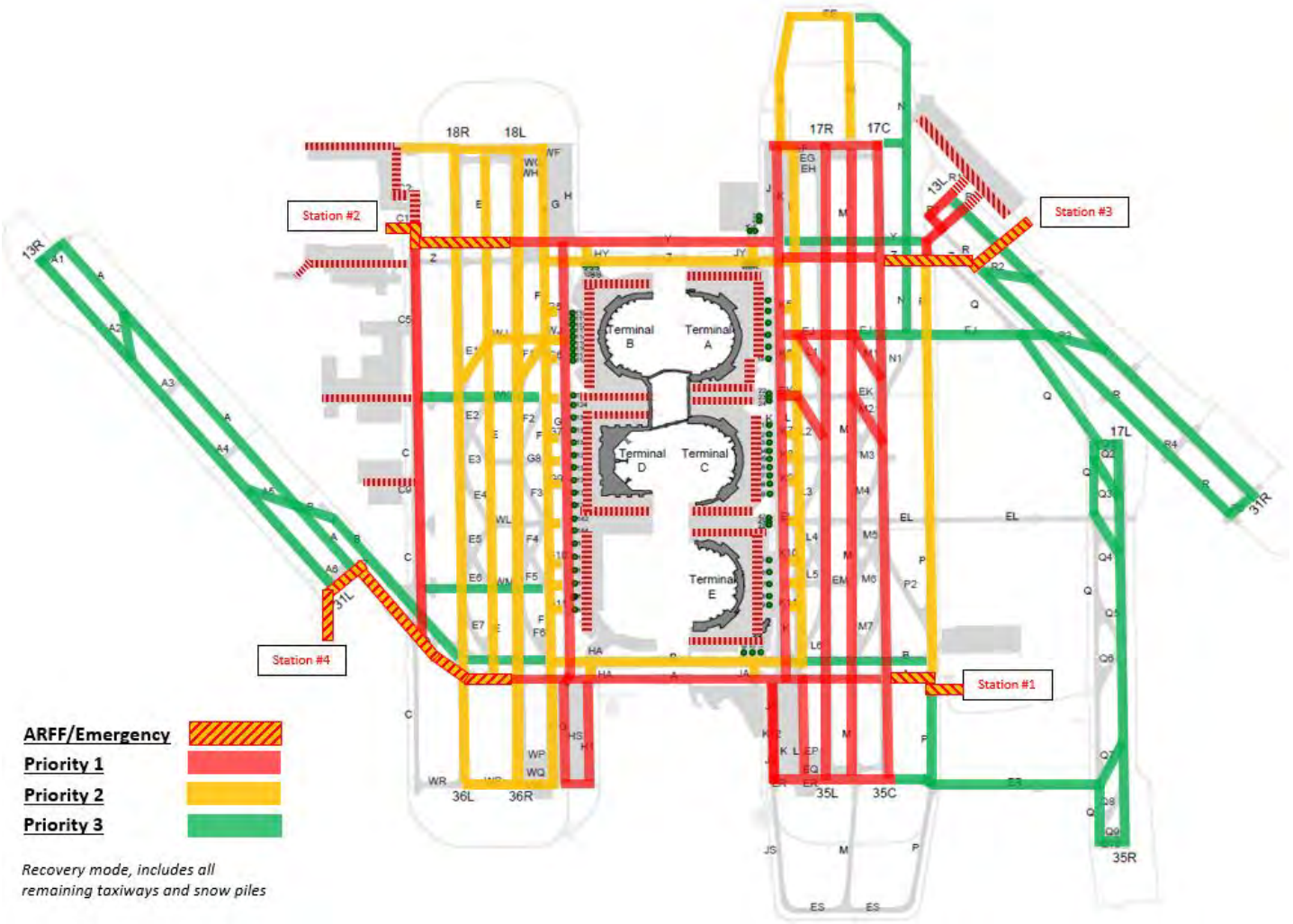
- Runway 18R/36L & Taxiway E1
- Runway 18L/36R & Taxiway F1
- Taxiway B between Taxiway F and Taxiway L
- Taxiway EE between Taxiway K and Taxiway M
- Taxiway E full length
- Taxiway F full length
- Taxiway HA between Taxiway B and Taxiway A
- Taxiway HY
- Taxiway JA
- Taxiway JY
- Taxiway K between Taxiway EE and Taxiway EF
- Taxiway L between Taxiway EF and Taxiway A
- Taxiway M between Taxiway EE and Taxiway EF
- Taxiway WF between UPS Ramp and Taxiway F
- Taxiway WJ between Taxiway E and Taxiway G
- Taxiway WR between Taxiway E and Taxiway F
- Taxiway Z between Taxiway F and Taxiway L
- Taxiways G5, G6, G7, G8, G9, G10, G11

- Taxiway WJ between Taxiway E and Taxiway G
- Taxiway WM between Taxiway F and Taxiway G
- Taxiways K5, K6, K7, K8, K9, K10, K11
- Taxiways EK, EL, and EM between Taxiway K and Taxiway L

c) Priority 3

- Runway 13R/31L & Taxiways A2, A5
- Runway 13L/31R & Taxiways R2, R3
- Runway 17L/35R & Taxiways Q3, Q7
- Taxiway A between Taxiway A1 and Taxiway A7
- Taxiway A1
- Taxiway B between Taxiway A and Taxiway F
- Taxiway B between Taxiway K and Taxiway P
- Taxiway EE between Taxiway M and Taxiway N
- Taxiway EF between Runway 17C/35C and Taxiway N
- Taxiway EJ between Taxiway M and Taxiway R
- Taxiway ER between Runway 17C/35C and Taxiway Q
- Taxiway N full length
- Taxiway P between ARFF Station 1 and Taxiway ER
- Taxiway Q between Taxiway EJ and Taxiway Q3
- Taxiway Q1
- Taxiway Q10
- Taxiway R between Taxiway Z and Taxiway R5
- Taxiway R5
- Taxiway WK between Taxiway C and Taxiway F
- Taxiway WM between Taxiway C and Taxiway F
- Taxiway Y between Taxiway K and Taxiway P

Priority Clearance



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3.4 Airfield Clearance Times

DFW is classified as a commercial service airport with more than 40,000 annual aircraft operations. Therefore, DFW should have sufficient equipment to clear 1 inch of falling snow weighing up to 25 pounds per cubic foot from Priority 1 surfaces within 30 minutes in compliance with the following table from A/C 150/5200-30 (current edition):

Annual Airplane Operations (includes cargo operations)	Clearance Time[1] (hour)
40,000 or more	1/2
10,000 – but less than 40,000	1
6,000 – but less than 10,000	1 1/2
Less than 6,000	2
General: Commercial Service Airport means a public-use airport that the U.S. Secretary of Transportation determines has at least 2,500 passenger boardings each year and that receives scheduled passenger airplane service [see 49 U.S.C. 47102(7)]. Footnote 1: These airports should have sufficient equipment to clear 1 inch (2.54 cm) of falling snow weighing up to 25 lb/ft^3 (400 kg/m^3) from Priority 1 areas within the targeted clearance times.	

3.6 Snow Equipment List

Please see Exhibit 6 for inventory of available snow and ice control equipment.

3.7 Storage of Snow and Ice Control Equipment

Due to the size, quantity, and variety of equipment utilized by DFW for snow and ice control operations, equipment is stored at various locations on the east and west side of the airport.

3.8 Definitions

Approved Chemical
A chemical, either solid or liquid, that meets a generic SAE or MIL specification.

Compacted Snow

Snow that has been compressed and consolidated into a solid form that resists further compression such that an airplane remains on its surface without displacing any of it. If a chunk of compressed snow can be picked up by hand, it holds together or can be broken into smaller chunks rather that falling away as individual snow particles.

Note: A layer of compacted snow over ice must be reported as compacted snow only.

> Example: When operating on the surface, significant rutting or compaction does not occur. 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.

Contaminant

A deposit such as frost, any snow, slush, ice, or water on an aerodrome pavement where the effects could be detrimental to the friction characteristics of the pavement surface.

Contaminated Runway

For purposes of generating a Runway Condition Code runway condition code and airplane performance, 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 frost, ice, and/or any depth of snow, slush, or water.

When runway contaminants exist, but overall coverage is 25 percent or less, the contaminants is still reported. However, a Runway Condition Code runway condition code is not generated.

While mud, ash, sand, oil, and rubber are reportable contaminants, there is no associated airplane performance data available, and no depth or Runway Condition Code is be reported.

> Exception: Rubber is not subject to the 25 percent rule and will be reported as Slippery When Wet when the pavement evaluation/friction deterioration indicates the averaged Mu value on the wet pavement surface is below the Minimum Friction Level classification specified in Table 3-2 of FAA Advisory Circular 150/5320-12, current edition.

Dry (Pavement)

Describes a surface that is neither wet nor contaminated.

Dry Runway

A runway is dry when it is neither wet, nor contaminated. For purposes of condition reporting and airplane performance, 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:

- Visible moisture or dampness, or
- Frost, slush, snow (any type), or ice

A FICON NOTAM must not be originated for the sole purpose of reporting a dry runway. A dry surface must be reported only when there is need to report conditions on the remainder of the surface.

Dry Snow

Snow that has insufficient free water to cause it to stick together. This generally occurs at temperatures well below 32° F (0° C). If when making a snowball, it falls apart, the snow is considered dry.

Eutectic Temperature/Composition

A deicing chemical melts ice by lowering the freezing point. The extent of this freezing point depression depends on the chemical and water in the system. The limit of freezing point depression, equivalent to the lowest temperature that the chemical melts ice, occurs with a specific amount of chemical. This temperature is called the eutectic temperature, and the amount of chemical is the eutectic composition. Collectively, they are referred to as the eutectic point.

FICON (Field Condition Report)

A Notice to Air Mission (NOTAM) generated to reflect Runway Condition Codes, vehicle braking action, and pavement surface conditions on runways, taxiways, and aprons.

Fluid Deicer/Anti-Icers

The approved specification is SAE AMS 1435, Fluid, Generic Deicing/Anti-icing, Runways and Taxiways.

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.

Note: 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.

Generic Solids

The approved specification is SAE AMS 1431, Compound, Solid Runway and Taxiway Deicing/Anti-Icing.

Ice

The solid form of frozen water to include ice that is textured (i.e., rough or scarified ice).

A layer of ice over compacted snow must be reported as ice only.

Layered Contaminant

A contaminant consisting of two overlapping contaminants. The list of layered contaminants has been identified in the RCAM and includes:

- Dry Snow over Compacted Snow
- Wet Snow over Compacted Snow
- Slush over Ice
- Water over Compacted Snow
- Dry Snow over Ice
- Wet Snow over Ice

Multiple Contaminants

A combination of contaminants (as identified in the RCAM) observed on paved surfaces. When reporting multiple contaminants, only the two most prevalent / hazardous contaminants are reported. When reporting on runways, up to two contaminant types may be reported for each runway third. The reported contaminants may consist of a single and layered contaminant, two single contaminants, or two layered contaminants. The reporting of "multiple contaminants" represents contaminants which are located adjacent to each other, not to be confused with a "layered contaminant" which is overlapping. For example:

- Single contaminant and Layered contaminant:

  'Wet' and 'Wet Snow over Compacted Snow'
- Single contaminant and Single contaminant:

  'Wet Snow' and 'Slush'
- Layered contaminant and Layered contaminant:

  'Dry Snow over Compacted Snow' and 'Dry Snow over Ice'

Runway (Primary and Secondary)

Primary

Runway(s) being actively used or expected to be used under the existing or anticipated adverse meteorological conditions, where the majority of the takeoff and landing operations take place.

Secondary

Runway(s) that supports a primary runway and is less operationally critical. Takeoff and landing operations on such a runway are generally less frequent than on a primary runway. Snow removal operations on these secondary runways should not occur until Priority 1 surfaces are satisfactorily cleared and serviceable.

Runway Condition Assessment Matrix (RCAM)

The tool by which an airport operator assesses a runway surface when contaminants are present.

Runway Condition Code (RwyCC)

Runway Condition Codes describe runway conditions based on defined contaminants for each runway third. Use of RwyCCs harmonizes with ICAO Annex 14, providing a standardized “shorthand” format (E.g.: 4/3/2) for reporting. RwyCC (which replaced Mu values) are used by pilots to determine landing performance calculations.

Sand

A sedimentary material, finer than a granule and coarser than silt.

Slush

Snow that has water content exceeding a freely drained condition such that it takes on fluid properties (e.g., flowing and splashing). Water drains from slush when a handful is picked up. This type of water-saturated snow is displaced with a splatter by a heel and toe slap-down motion against the ground.

Slush over Ice

See individual definitions for each contaminant.

Slippery When Wet Runway

A wet runway where the surface friction characteristics would indicate diminished braking action as compared to a normal wet runway.

Slippery When Wet is only reported when a pavement maintenance evaluation indicates the averaged Mu value on the wet pavement surface is below the Minimum Friction Level classification specified in Table 3-2 of FAA Advisory

Circular 150/5320-12 (current edition). Some contributing factors that can create this condition include rubber buildup, groove failures/wear, and pavement macro/micro textures.

Water

The liquid state of water. For purposes of condition reporting and airplane performance, water is greater than 1/8-inch (3mm) in depth.

Wet Runway

A runway is wet when it is neither dry nor contaminated. For purposes of condition reporting and airplane performance, a runway can be 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 water that is 1/8-inch or less in depth.

Wet Ice

Ice that is melting, or ice with a layer of water (any depth) on top.

Wet Snow

Snow that has grains coated with liquid water, which bonds the mass together, but that has no excess water in the pore spaces. A well-compacted, solid snowball can be made, but water does not squeeze out.

Chapter 4. Snow Clearing Operations and Ice Prevention

4.1 Snow Clearing Principles

a) Ramp and Terminals

Snow/ice removal or control within lease areas other than the central terminal area (noted below) is the responsibility of the primary tenant. Snow/ice removal or control begins in accordance with the order of priorities established in this Plan or as otherwise determined to sustain safe aircraft operations. All these locations are within the non-movement areas.

Snow/ice removal or control of the aircraft hardstand parking area located at the site of the future Terminal F will be conducted by DFW Airport.

Snow/ice removal or control within the terminal ramp areas noted below is conducted by a vendor under contract with the airport, in coordination with the airport and its stakeholders.

- Terminals A, B, C, and D Ramps – coordination is accomplished with American Airlines
- Terminal E Ramp – coordination is accomplished with the various other airlines (OALs) at the terminal

b) Runway and Taxiways

DFW Airport utilizes a combination of Multi-Function equipment (MFE) and traditional snow equipment during snow and ice removal activities. The use of this equipment is determined be evaluating the following factors: airport flow, wind direction and speed, temperature, type of precipitation, type and amount of accumulation, and number of available pieces of equipment.

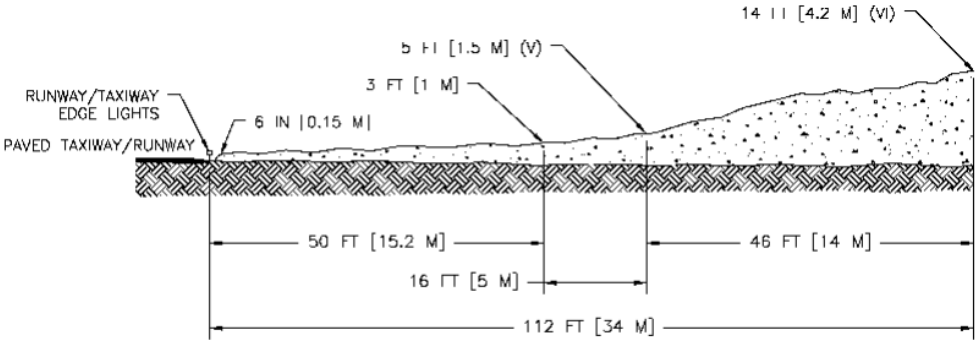
During snow and ice removal activities, DFW Airport strives to maintain runways in a “no worse than wet” condition, understanding this is not always possible. When the airport is experiencing heavy or difficult to remove contamination (such as ice), removal efforts will be concentrated on maintaining a useable surface on the center portion of the priority runways.

Because high-speed exits are essential to the efficient and safe movement of aircraft, the airport uses a high-speed clearing team to ensure these essential turn offs offer sufficient directional control and braking action for aircraft.

In addition to the runway and taxiway clearing teams, the airport may form a team with extra equipment and personnel as available to address areas of significant concern identified by Airfield Operations.

c) Snowbanks

Snowbank heights are regularly checked by Airfield Operations and should be kept lower than the maximum allowable snowbank height as defined in Advisory Circular 150/5200-30 (current edition):



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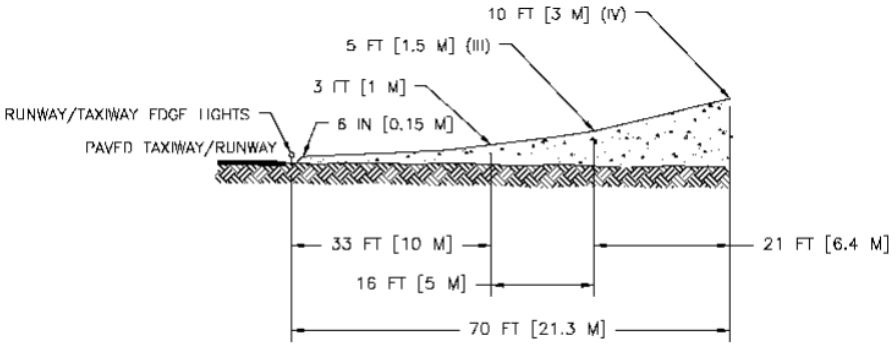

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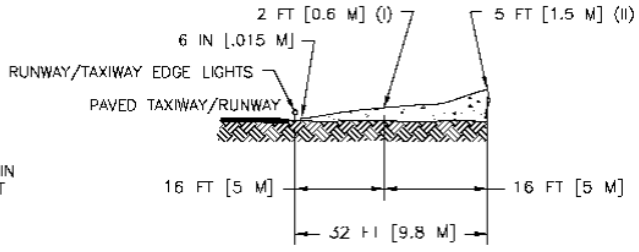
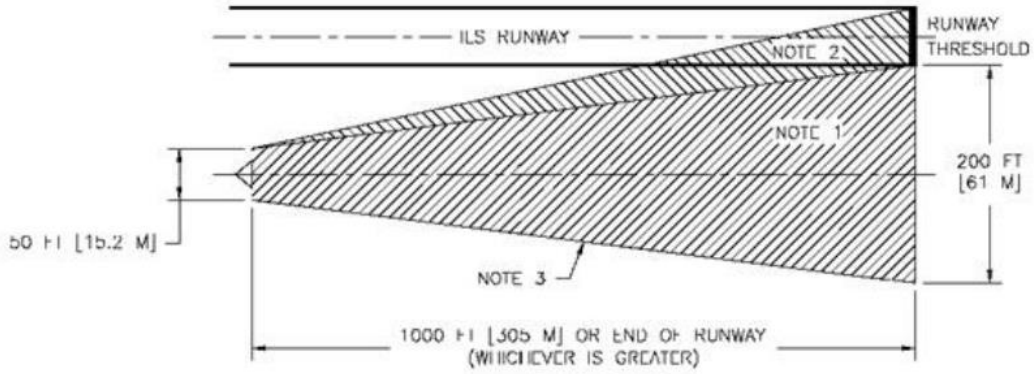


NOTE: SNOWBANK HEIGHT AS SHOWN IN FIGURE 4.2 MUST ALSO BE MET FOR ALL THREE ILLUSTRATIONS.

DESIGN GROUP I AND II

d) NAVAIDs

The essential areas around NAVAIDs, including access roads and maintenance areas, will be cleaned as defined in Advisory Circular 150/5200-30 (current version):



NOTES:

1. CATEGORY I GLIDE SLOPE SNOW CLEARANCE AREA.
2. CATEGORY II AND III GLIDE SLOPE SNOW CLEARANCE AREA. THE AREA DEPICTED UNDER NOTE 1 SHALL ALSO BE CLEARED.
3. THE DEPTH OF SNOWBANKS ALONG THE EDGES OF THE CLEARED AREA SHALL BE LESS THEN 2 FEET.

ACTION TAKEN	SNOW DEPTH		
	SBR <6 IN [15 cm] NR. CEGS <18 IN [45 cm]	SBR 6 TO 8 IN [15 TO 20 cm] NR. CEGS 18 TO 24 IN [45 TO 60 cm]	SBR >8 IN [20 cm] NR. CEGS <24 IN [60 cm]
SNOW REMOVAL (SEE ABOVE FIGURE)	REMOVAL NOT REQUIRED RESTORE FULL SERVICE AND CATEGORY.	ILS CATEGORY I REMOVE SNOW 50 FT [15M] WIDE AT MAST WIDENING TO 200 FT [60M] WIDE AT 1000 FT [300M] OR END OF RUNWAY TOWARD MIDDLE MARKER. ILS CATEGORIES II AND III AS ABOVE PLUS WIDEN THE AREA TO INCLUDE A LINE FROM THE MAST TO THE FAR EDGE OF RUNWAY THRESHOLD.	
NO SNOW REMOVAL	RESTORE FULL SERVICE AND CATEGORY.	ALL CATEGORIES RESTORE TO CATEGORY I SERVICE. CATEGORY D AIRCRAFT MINIMA RAISED TO LOCALIZER ONLY. TYPICAL NOTAM TEXT: "DUE TO SNOW ON THE IXXX (APPROPRIATE IDENTIFER) GLIDE SLOPE, MINIMA TEMPORARILY RAISED TO LOCALIZER ONLY FOR CATEGORY D AIRCRAFT" IF APPLICABLE, "CATEGORY II NA"* OR "CATEGORY II/III NA".	ALL CATEGORIES APPROACH RESTRICTED TO LOCALIZER ONLY MINIMA. TYPICAL NOTAM TEXT: "DUE TO SNOW ON THE IXXX (APPROPRIATE IDENTIFER) GLIDE SLOPE, MINIMA TEMPORARILY RAISED TO LOCALIZER ONLY.

* NA (NOT AUTHORIZED)

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4.2 Controlling Snow Drifts

The following principles regarding snow drift control are applied to maintain safe operating conditions on Movement Areas:

- Drifted or windblown snow on runways and taxiways are promptly removed or controlled to the extent practicable
- In the event of heavy snow accumulation, the height of snowbanks alongside usable runway or taxiway surfaces are such that:
    - All aircraft propellers, engine pods, rotors, and wingtips clear each snowbank when the aircraft landing gear traverses any full-strength portion of the Movement Area
    - The permissible snow heights in glide slope critical areas are properly maintained
    - All runway hold position signs and ILS critical area signs are clearly visible
    - All taxiway guidance signs are clearly visible
- No fencing or trenches are currently used to control snow drifts on the airfield

4.3 Snow Disposal

DFW uses snow melters on the ramp areas to reduce the need for snow dumps.

In coordination with Environmental Affairs (EAD), snow contaminated with spent aircraft deicing fluid (SADF) that has been removed from the airside is dumped within one of the airport designated aircraft deicing pads or other areas designated by EAD staff to properly capture the SADF. Snow that has been contaminated with hydrocarbon (fuel or oils) should be picked up and disposed of properly. Hydrocarbons cannot be allowed to runoff into the collection tanks.

Non-contaminated snow may be stockpiled on the 1E Corporate Aviation ramp. Coordination must take place in advance with EAD, IOC Bridge Manager, and the Corporate Aviation staff prior to stockpiling non-contaminated snow.

4.4 Methods for Ice Control and Removal – Chemicals

DFW utilizes a liquid potassium acetate-based solution runway deicer which is a 50% aqueous potassium acetate solution, by weight. This solution is used both for anti-icing and deicing operations. Typically, fluid is sprayed on key airfield pavements prior to the onset of freezing precipitation and is also applied to airfield surfaces contaminated with ice or slush.

4.5 Sand

Snow, ice, and slush is removed as much as practicable on runways, high-speed turnoffs, and taxi routes. When necessary, surface friction is improved by the application of airfield sand when icing conditions persist and ice cannot be removed. Sand used on the AOA is washed, free of debris and corrosive materials, and screened through a # 8, 30 and 80 sieve per specifications as noted in Figure 4-3, A/C 150/5200-30 (current edition):

Sieve Designation	Percent by Weight Passing
8	100
30	20-50
80	0-2

4.6 Surface Incident/Runway Incursion Mitigation Procedures

All vehicles engaged in snow and ice control operations are not permitted to enter a runway unless clearance has been received from FAA ATC or the runway has been closed by Airfield Operations.

ETAM notifies Airfield Operations when the snow removal team is assembled and prepared for snow and ice control operations. While operating on the AOA standard aviation phraseology is used for communications between ETAM, Airfield Operations, and FAA ATC. All personnel read back ATC instructions.

Runways are closed by Airfield Operations in coordination with the FAA Tower.

All snow removal personnel working in the movement area that are in direct support of the SICP receive runway incursion awareness training. Vehicles equipped with Runway Incursion Prevention (RIWS) systems are required to operate those systems at all times.

Annual SICP training for snow removal personnel is conducted prior to the normal snow and ice season to ensure familiarization with SICP procedures and equipment operation. Training includes identification of priority pavements and runway snow removal dry-run exercises.

Vehicles are typically marked and lighted in accordance with AC 150/2510-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport* (current edition).

a) Radio Communication

It is the responsibility of Airfield Operations to make all radio calls to ATC and to lead the snow removal equipment around the airfield. All snow removal equipment is equipped with two-way VHF radios and two-way 700mhz radio systems. ETAM personnel monitor ATC frequencies while Operations make all radio calls and relays information via the 700mhz radio system.

b) Failed Radio Communication

If radio communication is lost between the airfield clearing crews and FAA ATC, attempts to communicate are made by cell phone. ATC coordinates movements between the field crews and ATC by cell phones as required until VHF radio communications are re-established.

If a single vehicle loses radio communication, that vehicle is either escorted out of the movement area by a vehicle with radio communication or that vehicle is escorted at all times by another vehicle equipped with a VHF radio.

c) Low Visibility and Whiteout Conditions

It is of utmost importance to maintain visual contact with your surroundings during snow and ice removal operations. If the visibility suddenly drops to near zero, or whiteout conditions exist while removal operations are in progress, all equipment will stop immediately with all drivers radioing in their positions to Airfield Operations and Maintenance Supervisors via the assigned radio frequency on the 700MHz Radio. Airfield Operations will then coordinate with ATC as to the proper evacuation route via progressive instructions or Follow Me truck implementation.

d) Driver Fatigue

At no time should any driver operate equipment on the movement area while fatigued. Driver fatigue is the number one contributor to Runway Incursions. Efforts are made to ensure work shifts do not exceed 12 hours and breaks for personnel are provided when possible.

Chapter 5. Surface Assessment and Reporting

5.1 Conducting Surface Assessments

Airfield Operations is responsible for the inspection and condition assessment of runways, taxiways, and other essential areas of the airfield in accordance with CFR Part 139. Special inspections of runways, taxi routes, ARFF routes, NAVAID Critical Areas, and taxilanes is conducted to assess changing conditions. Pilot braking action reports, Continuous Friction Measuring Equipment (CFME), and pavement condition sensors are resources used in conducting assessments.

Generally, paved surfaces are inspected by Airfield Operations whenever there is a change in the runway condition. Changes may include weather events, plowing or sweeping operations, or the application of chemicals or sand.

DFW utilizes the NOTAM Manager system for the documentation and dissemination of airfield information to the air carriers and the FAA. Further information on surface conditions may be relayed to ATC in plain language as required.

5.2 Applying the Runway Condition Assessment Matrix (RCAM)

a) Determining Runway Conditions

Airfield Operations will perform a physical inspection of runway surfaces when contaminants are present and report runway conditions using the RCAM for each third. Runway conditions and Runway Condition Codes (RwyCCs) are disseminated via NOTAMs and are updated as runway conditions change. Changes to status of the airfield conditions are disseminated via NOTAM Manager System.

Step 1: Runway Condition Code (RwyCC) Applicability

If 25 percent or less of the overall runway length and width or cleared width is covered with contaminants, RwyCCs must not be applied, or reported. The airport operator in this case, simply reports the contaminant percentage, type, and depth for each third of the runway, to include any associated treatments or improvements.

Or

If the overall runway length and width coverage or cleared width is greater than 25 percent, RwyCCs must be assigned, and reported, informing airplane operators of the contaminant present, and associated codes for each third of the runway. (The reported codes serve as a trigger for all airplane operators to conduct a takeoff and/or landing performance assessment).

Step 2: Apply Assessment Criteria

Based on the contaminants observed, the associated RwyCC from the RCAM for each third of the runway is assigned.

Step 3: Validating Runway Condition Codes

If the observations by the airport operator determine that RwyCCs assigned accurately reflect the runway conditions and performance, no further action is necessary, and the RwyCCs generated may be disseminated.

b) Downgrade Assessment Criteria

When observations indicate a more slippery condition than generated by the RCAM, the airport operator may downgrade the RwyCC(s). When applicable, the downgrade of RwyCCs may be based on friction (μ) readings, vehicle control or pilot reported braking action or temperature.

> *NOTE: Temperatures near and above freezing (e.g., at 26.6° F (-3° C) and warmer) may cause contaminants to behave more slippery than indicated by the runway condition code given in the RCAM. At these temperatures, airport operators should exercise a heightened awareness of airfield conditions and should downgrade the RwyCC if appropriate.*

c) Upgrade Assessment Criteria Based on Friction Assessments.

RwyCCs of 0 or 1 may only be upgraded when the following requirements are met.

1. All observations, judgement, and vehicle braking action support the higher RwyCC, and
2. Mu values of 40 or greater are obtained for the affected third(s) of the runway by a calibrated friction measuring device that is operated within allowable parameters.
3. This ability to raise the reported RwyCC to no higher than a code 3 can only be applied to those runway conditions listed under code 0 and 1 in the RCAM (see footnote 2 on the RCAM).
4. 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.
    a. 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.

b. If sand or other approved runway treatments are used to satisfy the requirements for issuing the higher runway condition code, the monitoring program must confirm continued effectiveness of the treatment.

5.3 Runway Friction Surveys, Equipment, and Procedures

DFW Airport utilizes the following equipment for runway friction surveys:

- Halliday RT3 CFME
- Bowmonk AFM2 MK III

a) Conditions Acceptable to CFME

The data obtained from such runway friction surveys conducted by CFME are only considered to be reliable when the surface is contaminated under any of the following conditions.

- Ice or wet ice
- Compacted snow at any depth
- Dry snow 1 inch or less
- Wet snow or slush 1/8 inch or less

b) When to Conduct

Friction surveys are accomplished as weather conditions change, but in no more than eight (8) hour intervals during any time that runway pavement is contaminated with snow, ice, or slush. If pilots report consistent favorable braking conditions, this interval may be extended.

Friction surveys are conducted whenever it is felt that the information is helpful in the overall snow/ice removal effort. The following guidelines, however, pertain to friction surveys conducted for the benefit of aircraft operations:

- When the central 50 feet (15m) of the runway, centered longitudinally along the runway centerline, is contaminated over a distance of 500 feet (150 m)
- Whenever pilot braking action reports indicate that runway friction is changing
- Following anti-icing, de-icing, or sanding operations
- At least once during each eight-hour period while one or more contaminants are present
- Immediately following any aircraft incident on the runway

- Any other time Airport management believes friction surveying would be useful, within the parameters of the equipment

Friction assessments are not conducted on closed surfaces unless corrective action has been taken to resolve issues with contamination.

c) How to Conduct

Procedures for performing friction surveys are followed as outlined below. The FAA ATC is notified in advance that friction surveying is required. Coordination between ATC and Airfield Operations is accomplished to the maximum extent possible to avoid disruption to aircraft operations.

- The person performing friction surveys ensures that all equipment is properly calibrated for each use and all ancillary systems (recording devices, radios, etc.) are operating properly
- Unless surface conditions are noticeably different on either side of the runway centerline, a test on one side of the centerline in the same direction the aircraft lands is accomplished
- Friction tests are conducted 10 feet to the right of the runway centerline to determine the worst-case condition and are conducted in the same direction aircraft are using the runway
- The runway length is divided into thirds to obtain the touchdown, midpoint, and rollout zones, according to aircraft landing direction
    - Surveying is conducted for each zone.
- Friction surveys are conducted to obtain the average MU number for each third of the runway
    - The vehicle will be operated at a safe, consistent speed for the duration of the survey

If, when friction survey readings have been issued on a regular basis and the CFME or decelerometer used to obtain these readings becomes unserviceable, a NOTAM is issued until the equipment is restored to service or the snow/ice conditions no longer exist. In the interim, runway advisories, using pilot reports, is issued.

d) Calibration

The friction testing equipment is calibrated, updated, and certified annually. Airfield Operations has the responsibility for ensuring this is completed.

5.4 Taxiway, Apron, and Holding Bay Assessments

Assessments to these surfaces occur when contaminants are present. Assessments occur anytime the pavement is worse than wet. Surfaces are monitored on a regular, continual basis.

5.5 Surface Condition Reporting

Airfield Operations personnel monitor changing airfield conditions and disseminate information about those conditions via the NOTAM System in a timely manner to airport users.

Runway: Runway condition reports occur when contaminants are present on a runway surface via the Federal NOTAM System. Condition Reports and RwyCCs are updated as necessary whenever conditions change, such as a contaminant type, depth, percentage, or treatment/width change.

Taxiway, Apron or Holding Bay: Taxiway, Apron or Holding Bay condition reports occur when contaminants are present on these surfaces via the NOTAM Manager System. NOTAMs are updated as necessary whenever conditions change, such as a contaminant type, depth, percentage, or treatment/width change.

Airfield Operations personnel will assess surface conditions any time a change occurs, which could be any of the following:

- active freezing precipitation/snow event
- plowing/booming/deicing/sanding
- rapidly rising or falling temperatures
- rapidly changing conditions

The term ‘DRY’ is used to describe a surface that is neither wet nor contaminated. While a FICON NOTAM is not generated for the sole purpose of reporting a dry runway, a dry surface is reported when there is need to report conditions on the remainder of the surface. (For example: snow is present on the first two thirds of the runway.)

5.6 Reportable Contaminants without Performance Data

If present, unable to be removed, and posing no hazard, mud is reported with a measured depth. Ash, oil, sand, and rubber contaminants is reported without a measured depth. These contaminants do not generate a RwyCC.

5.7 Slippery When Wet Runway

For runways where a friction survey (for the purposes of pavement maintenance) indicates the averaged Mu value at 40 mph on the wet pavement surface failed to meet the minimum friction level classification specified in AC 150/5320-12 (current edition), the airport reports via the NOTAM system a RwyCC of '3' for the entire runway (by thirds: 3/3/3) when the runway is wet.

A runway condition description of 'Slippery When Wet' is used for this condition.

If it is determined by the airport that a downgrade is necessary, the downgrade is made to all three runway thirds match (i.e. 3/3/3, 2/2/2, 1/1/1).

The NOTAM is cancelled when the minimum runway friction level classification has been met or exceeded.

5.8 Requirements for Closures

Runways receiving a NIL braking (either pilot reported or by assessment by the airport) are unsafe for aircraft operations and are closed immediately when this unsafe condition exists.

When previous PIREPs have indicated GOOD or MEDIUM braking action, two consecutive POOR PIREPS should be taken as evidence that surface conditions may be deteriorating. If the airport operator has not already instituted its continuous monitoring procedures, an assessment should occur before the next operation. If the airport operator is already continuously monitoring runway conditions, this assessment should occur as soon as air traffic volume allows.

The airport maintains available airport surfaces in a safe operating condition at all times and provide prompt notifications when areas normally available are less than satisfactorily cleared for safe operations. If a surface (runway, taxiway, apron, lane or holding bay) becomes unsafe due to a NIL (by braking action or assessment) or otherwise unsafe hazard or condition, the surface is closed until the condition no longer exists and is safe.

The Dallas/Fort Worth Tower and Dallas/Fort Worth International Airport Board have established a letter of agreement to establish procedures and designate personnel authorized to close and reopen movement areas of the airfield. The relevant section to closing airfield surfaces reads as follows:

Letter of Agreement – Subject: Responsibility for Determination and Change of Airfield Status

Section 6. Authority: Only the following Airfield Operations Section personnel are authorized to determine the Airfield Status (i.e., open or close runways, taxiways, or other portions of the movement area). These personnel are identified as follows:

(1) Vice President, Operations	*Radio Call Sign Port 100*
(2) Assistant Vice President, Airfield Operations	*Radio Call Sign Port 101*
(3) Manager, Airfield Operations	*Radio Call Sign Port 109*
(4) Airfield Operations Officers (Multiple)	*Radio Call Sign Port 102*
(5) Assistant Airfield Operations Officers (Multiple)	*Radio Call Sign Port 110 – Port 119*

(6) Port 103 through Port 108 are used when there is more than one Airfield Operations Officer on duty (snow and ice season, emergencies, etc.)

5.9 Continuous Monitoring and Deteriorating Conditions

Under deteriorating conditions, the airport takes all reasonable steps using available equipment and materials that are appropriate for the condition to improve the braking action. If braking action cannot be improved, and the surface is not NIL, the airport continually monitors the runways, taxiways, aprons and holding bays to ensure braking does not become NIL.

Deteriorating conditions include but are not limited to:

- Frozen or freezing precipitation
- Falling air or pavement temperatures that may cause a wet runway to freeze
- Rising air or pavement temperatures that may cause frozen contaminants to melt
- Removal of abrasives previously applied to the runway due to wind or airplane effects
- Frozen contaminants blown onto the runway

Appendices

FAA APPROVED
Dec 13 2022, 10:25 am
RM

FAA Approval: _____

Snow Equipment List

Unit #	Raiko Ice Brakers	Area of Service
1410	Raiko T15	General
1420	Raiko T15	General
1430	Raiko T15	General
1460	Raiko T15	General
Unit #	**Loaders**	**Area of Service**
9289	2004 New Holland Tractor Loader W/Box Blade	General
9371	2005 Cat 924 Wheel Loader	General
9393	2004 Cat 430D Backhoe Loader	General
9310	2018 cat Skid Steer Loader	General
9357	2006 John Deere Front End Loader	General
9349	2019 Case Skid Steer Loader	General
Unit #	**Quick Attach Front End Loader For Tractors**	**Area of Service**
1	Loader Attachment for Tractor	General
2	Loader Attachment for Tractor	General
3	Loader Attachment for Tractor	General
4	Loader Attachment for Tractor	General
5	Loader Attachment for Tractor	General
6	Loader Attachment for Tractor	General
Unit #	**Broom Attachment For Tractors**	**Area of Service**
1	Broom Attachment	General
2	Broom Attachment	General
Unit #	**Broom Attachment For Dump Trucks**	**Area of Service**
1	Broom Attachment	General
2	Broom Attachment	General
Unit #	**Snow Melters**	**Area of Service**
1	Trecan Snow Melter #1	Airside
2	Trecan Snow Melter #2	Airside
Unit #	**5 Ton Dump Truck With Spreader**	Area of Service
9233	2003 Freightliner 5 Ton Dump Truck (Roll-on Spreader 9278)	Airside
9234	2003 Freightliner 5 Ton Dump Truck (Roll-on Spreader 9272)	Airside
9241	2020 Freightliner Dump Truck (Slide-in Spreader)	Airside
9262	2020 Freightliner Dump Truck (Slide-in Spreader)	Airside
9263	2004 Sterling 5 Ton Dump Truck (Roll-on Spreader 9276)	Airside
9264	2005 Sterling 5 Ton Dump Truck (Roll-on Spreader 9277)	Airside
9265	2020 Freightliner Dump Truck (Slide-in Spreader)	Airside

Snow Equipment List (Continued)

Unit #	De-Icer Truck	Area of Service
8010	2016 OshKosh Runway Batts Deicing Tuck 4000 gal.	Airside
8011	2016 OshKosh Runway Batts Deicing Tuck 4000 gal.	Airside
8012	2016 OshKosh Runway Batts Deicing Tuck 4000 gal.	Airside
8013	2016 OshKosh Runway Batts Deicing Tuck 4000 gal.	Airside
8014	2016 OshKosh Runway Batts Deicing Tuck 4000 gal.	Airside
8015	2016 OshKosh Runway Batts Deicing Tuck 4000 gal.	Airside
Unit #	**Airfield Brooms**	**Area of Service**
8016	2016 OshKosh Front Mount Broom	Airside
8017	2016 OshKosh Front Mount Broom	Airside
8018	2016 OshKosh Front Mount Broom	Airside
8019	2016 OshKosh Front Mount Broom	Airside
8020	2016 OshKosh Front Mount Broom	Airside
8021	2016 OshKosh Front Mount Broom	Airside
8022	2016 OshKosh Front Mount Broom	Airside
8023	2016 OshKosh Front Mount Broom	Airside
9485	2012 International Truck with MB Front Mount Broom	Airside
9486	2012 International Truck with MB Front Mount Broom	Airside
9487	2012 International Truck with MB Front Mount Broom	Airside
9488	2012 International Truck with MB Front Mount Broom	Airside
Unit #	**Snow Blowers**	**Area of Service**
8055	2015 OshKosh Snow Blower (Right)	Airside
8056	2015 OshKosh Snow Blower (Right)	Airside
8057	2015 OshKosh Snow Blower (Right)	Airside
8058	2016 OshKosh Snow Blower (Loading Chute)	Airside
8059	2016 OshKosh Snow Blower (Loading Chute)	Airside
8060	2016 OshKosh Snow Blower (Left)	Airside
8061	2016 OshKosh Snow Blower (Left)	Airside
8062	2016 OshKosh Snow Blower (Left)	Airside
Unit #	**Vammas Snow 30 ft Plow and Broom**	**Area of Service**
9900	2012 Vammas PSB 5500 Snow Plow - Broom - Blower	Airside
9901	2012 Vammas PSB 5500 Snow Plow - Broom - Blower	Airside
9902	2012 Vammas PSB 5500 Snow Plow - Broom - Blower	Airside
9903	2012 Vammas PSB 5500 Snow Plow - Broom - Blower	Airside
9904	2012 Vammas PSB 5500 Snow Plow - Broom - Blower	Airside

Snow Equipment List (Continued)

9905	2012 Vammas PSB 5500 Snow Plow - Broom - Blower	Airside
9906	2012 Vammas PSB 5500 Snow Plow - Broom - Blower	Airside
9907	2012 Vammas PSB 5500 Snow Plow - Broom - Blower	Airside
9908	2012 Vammas PSB 5500 Snow Plow - Broom - Blower	Airside
9909	2012 Vammas PSB 5500 Snow Plow - Broom - Blower	Airside
Unit #	**OshKosh Tow Behind Multifunction Unit**	**Area of Service**
8024	2016 OshKosh Multifunction Plow - Broom - Blower	Airside
8025	2016 OshKosh Multifunction Plow - Broom - Blower	Airside
8026	2016 OshKosh Multifunction Plow - Broom - Blower	Airside
8027	2016 OshKosh Multifunction Plow - Broom - Blower	Airside
8028	2016 OshKosh Multifunction Plow - Broom - Blower	Airside
8029	2016 OshKosh Multifunction Plow - Broom - Blower	Airside
8030	2016 OshKosh Multifunction Plow - Broom - Blower	Airside
8031	2016 OshKosh Multifunction Plow - Broom - Blower	Airside
8032	2016 OshKosh Multifunction Plow - Broom - Blower	Airside
8033	2016 OshKosh Multifunction Plow - Broom - Blower	Airside
8034	2016 OshKosh Multifunction Plow - Broom - Blower	Airside
8035	2016 OshKosh Multifunction Plow - Broom - Blower	Airside
8036	2016 OshKosh Multifunction Plow - Broom - Blower	Airside
8037	2016 OshKosh Multifunction Plow - Broom - Blower	Airside

Runway Condition Assessment Matrix

Assessment Criteria		Downgrade Assessment Criteria		
Runway Condition Description	**Code**	**Mu (μ) [1]**	**Vehicle Deceleration or Directional Control Observation**	**Pilot Reported Braking Action**
• Dry	6	40 or Higher	---	---
• Frost • Wet (Includes Damp and 1/8 inch depth or less of water) ***1/8 inch (3mm) depth or less of:*** • Slush • Dry Snow • Wet Snow	5		Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	Good
5° F (-15°C) and Colder outside air temperature: • Compacted Snow	4	39 to 30	Braking deceleration OR directional control is between Good and Medium.	Good to Medium
• Slippery When Wet (wet runway) • Dry Snow or Wet Snow (Any depth) over Compacted Snow ***Greater than 1/8 inch (3mm) depth of:*** • Dry Snow • Wet Snow ***Warmer than 5° F (-15°C) outside air temperature:*** • Compacted Snow	3		Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	Medium
Greater than 1/8 (3mm) inch depth of: • Water • Slush	2	29 to 21	Braking deceleration OR directional control is between Medium and Poor.	Medium to Poor
• Ice [2]	1		Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	Poor
• Wet Ice [2] • Slush over Ice [2] • Water over Compacted Snow [2] • Dry Snow or Wet Snow over Ice [2]	0	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; with the exception of circumstances identified in Note 2.** 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 40 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 26.6° F (-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.