



SNOW AND ICE CONTROL PLAN
For
WAUKEGAN NATIONAL AIRPORT
2015-2016



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Section 1 – Definitions

- a) *Contaminant.* Any substance on a runway or taxiway; for the purpose of this SICP contaminant is snow, slush, ice or standing water.
- b) *Dry Snow.* Snow that has insufficient free water to cause cohesion between individual particles. If, when making a snowball, it falls apart, the snow is considered dry.
- c) *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 will not squeeze out.
- d) *Compacted Snow.* Snow that has been compressed into a solid mass that resists further compression and will hold together or break up into lumps if picked up.
- e) *Slush.* Snow that has water content exceeding its freely drained condition, such that it take on fluid properties (e.g. flowing and splashing). Water will drain from slush when a handful is picked up.
- f) *Patchy Conditions.* Areas of bare pavement showing through snow and/or ice covered pavements.
- g) *Approved Chemicals.* A chemical, either solid or liquid, that meets a generic SAE or MIL specification.
- h) *Fluid Deicer/Anti-Ice.* The approved specification is SAE AMS 1435. This specification covers deicing and anti-icing materials in the form of a fluid for runways and taxiways.
- i) *Generic Solids.* The approved specification is SAE AMS 1431. This specification covers a deicing and anti-icing compound in the form of a solid. Unless otherwise stated, all specifications referenced herein are latest (current) revision. These compounds have been used typically at airports on aircraft maneuvering areas, such as aprons, runways, and taxiways, for the prevention and removal of frozen deposits of snow, frost, and ice, but usage is not limited to such applications.
- j) *Braking Action.* A report of conditions on the airport movement area providing a pilot with a degree/quality of braking that he/she might expect. Braking action is reported in terms of good fair, poor, or nil. (See table on page 15)
- k) *Incursion.* Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft.
- l) *Notice to Airmen (NOTAM).* A notice filed with an aviation authority to alert aircraft pilots of potential hazards along a flight route or at a location that could affect the safety of the flight.

- m) *PIREP*. Weather and other observations communicated by pilots to Flight Service, where they are made available to other pilots.

Section 2 - Administrative

a) Objective -

The objective of the Waukegan National Airport Snow Removal Plan is for the prompt removal of snow, ice, and slush in an efficient manner so that the airfield is in a safe operational status at all times. The handling of snow is an important part of airport operations, and personnel engaged in snow removal must know their assigned duties and snow removal operations, and will be effective upon the declaration of a snow emergency by the Airport Manager or his or her representative. The snow removal effort will be directed at clearing the airfield, and associated taxiways areas. Priorities will be established to remove snow in the most efficient and safe manner regardless of snowfall. Airport employees and equipment will give first priority to the airfield until accumulated snow has been removed in a satisfactory manner. Additional snow and ice control information, as well as other related material, can be found in the Federal Aviation (FAA) Advisory Circular 150/5200-30C.

b) Airport Management Pre-season Meeting. The Executive Director and Airport Manager will typically initiate a meeting, in June or July, to discuss equipment and material inventory, repair needs, staffing, budget, training, previous years issue's, and any other topics associate with snow and ice control and its plan.

c) Snow and Ice Control Committee (SICC) Meetings. The Waukegan National Airport has developed a Snow and Ice Control Committee (SICC) to provide feedback and make recommendations to snow and ice removal operations and the Snow and Ice Control Plan (SICP) at the Waukegan National Airport. The SICC is chaired by the Airport Manager and includes the following: Waukegan Port District Executive Director, all Airport Maintenance staff, Waukegan National Airport's Tower Chief, a representative from Landmark Aviation, WCAF and tenants, Grainger, Baxter, and the flying schools of Skill Aviation and Stick & Rudder. All other tenants are invited to participate.

During the month of July the Waukegan National Airport will begin notifying tenants and airport users to review, and provide comments to be discussed at the SICC meeting, typically in September.

The following topics will be discussed in the SICC meeting:

- Airport Clearing Operations Discussion Topics
 - Areas Designated as Priority 1, any new airfield infrastructure
 - Clearing operations and follow-up airfield assessments
 - Potentials for pilot or vehicular runway incursions or incidents
 - Staff requirements and qualifications (training)
 - Streamline decision making process
 - Response time to keep runways, taxiways and ramp areas operational
 - Communication, terminology, frequencies, and procedures

- Monitoring and updating of runway surface conditions
- Issuance of NOTAMS/FCR's and dissemination to ensure timely notification
- Equipment inventory
- Status of procurement contracts, including storage of materials
- Validation of deicer certification letters from vendors
- Procedures for storm water runoff mitigation
- Snow hauling/disposing, snow dumps
- FBO & Tenants Ground Deicing/Anti-icing Programs
 - Assessing all airport tenants deicing programs.
 - Maximize efficiency of operations during icing conditions by identifying locations for airplane deicing; planning taxi routes to minimize ground times.
 - Any requirements for containment/collection of deicing/anti-icing.

d) Personnel Training. All Airport Maintenance personnel receive annual, recurrent snow removal training. All training for airport personnel is conducted by the Maintenance Supervisor. Training requirements shall consist of knowledge of snow equipment, snow removal procedures, airfield layout, and any changes to the airport. (Reference FAA 14 C.F.R. 139.303a)

e) Pre-event Meetings. Before each snow event, if possible, the Airport Manager should host a meeting and invite the Waukegan Control Tower chief to discuss any issues that have arisen from the last event, and that all outstanding issue items have been resolved. In addition, airport management shall ensure that sufficient staffing, materials, and equipment are available for a snow or ice event. (Reference FAA 14 C.F.R. 139.303a)

f) Post Event Meetings. The Airport Manager will host a monthly meeting of the SICC after a snow event, and invite the Waukegan Control Tower chief 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 or a challenging operation, or if as special circumstances dictate, a separate SICC meeting will be held.

g) Equipment Preparation. Sixty days prior to the snow season, the airports maintenance staff shall inspect and prepare each piece of snow removal equipment. Required fluids, replacement parts, and snow removal equipment components will be inventoried and stockpiled.

Section 3 – Snow Removal Operations

Authority. During working hours (0700-1530) when the braking action on the runways is deteriorating, the Maintenance Supervisor shall make a visual inspection every 30 minutes and report to the Airport Manager who will make a determination of action, if any, should be taken to improve the conditions (DOT/FAA/TC-TN/3/22 dated June 2013 – TALPA ARC RCAM). For off hours, Airport Security will do the same, and advise the Airport Manager about conditions. The Control Tower will also contact the Airport Manager when conditions degrade.

a) **Snow Control Center (SCC).** The SCC shall be the Maintenance Supervisor's vehicle or Snow 1 during all snow events.

The SCC shall manage snow clearing operations, and serve as a prime source of all field condition reports.

b) **Shift Coverage.** All maintenance employees shall be available during a snow event. Shifts will end upon the discretion of the Maintenance Supervisor, or the next immediate supervisor.

c) **Airfield Clearance Times.** The Waukegan National Airport shall use table 1-2 to determine clearance times. (Reference AC 150/5200-30c) NOTE – UGN conducts more than 50,000 operations annually.

Table 1-2. Clearance Times for Non-Commercial Service Airports

<i>Annual Airplane Operations (includes cargo operations)</i>	<i>Clearance Time¹ (hour)</i>
<i>40,000 or more</i>	<i>2</i>
<i>10,000 – but less than 40,000</i>	<i>3</i>
<i>6,000 – but less than 10,000</i>	<i>4</i>
<i>Less than 6,000</i>	<i>6</i>
<i>General: Although not specifically defined, Non-Commercial Service Airports are airports that are not classified as Commercial Service Airports [see Table 1-1, general note].</i>	
<i>Footnote 1: These airports may wish to have sufficient equipment to clear 1 inch (2.54 cm) of falling snow weighing up to 25 lb/ft² (400 kg/m²) from Priority 1 areas within the recommended clearance times.</i>	

d) **Airfield Clearing Priorities.** Snow and/or ice removal shall begin on the primary (instrument) runway and its associated taxiways. As necessary, a plow will begin removal operations on the main road and parking lots. The snow removal efforts shall continue on the highest priority areas, until completed, then move on to the next level of priority. Outside of normal working hours, a 12 hour advanced notification to the Airport Manager, can provide for snow removal priorities to accommodate arriving or departing aircraft. The Airport Manager will maintain a log to track such requests.

Call list phone numbers attached on page 12.

Priority 1

Runway 5 – 23, taxiways Alpha, Bravo, Delta, and Baxter's half of Charlie.
Crossover's A-1 thru A-8, and Ramp entrances M1, M2, and M3.

Priority 2

East half of taxiway Charlie, Foxtrot, Runway 14-32, Red Hangars, taxi lanes E3 and E4.
Crossovers B1, B2, B3, C1, C2, C3 & glide slope and Fire roads.

Priority 3

Sierra taxiway, S1, S2, S3 & the appropriate taxiways to hangars, and parking lot.

e) **Snow Removal Operations Triggers.** Snow operations will commence when the depth of snow reaches 1/2 inch, or the braking action degrades below fair. All maintenance employees will respond and commence clearing the snow/ice. Snow removal will continue until completed except for after Tower hours when the snow removal crew will work to 10:00 pm., or a time determined by the Airport Manager as conditions and needs warrant. Arrangements can be made with the Airport Manager for aircraft arriving or departing after hours. The Waukegan National Airport will remain

proactive with any forecast of arriving storms to ensure timely arrivals and departures of aircraft. Final decisions will be made by Airport Manager. (See section **d** above)

f) Snow Equipment List.

2011 International 7600 SFA 6 X 4 with 20 foot plow, spreader, & deicer boom. (Snow 1)

1988 Idaho Norland snow blower (Snow 2)

1985 FWD Dump Truck with 20 foot plow and sand spreader. (Snow 4)

1995 TopKick 2 Ton Dump Truck with 11 foot plow and sand spreader. (Snow 6)

2008 Ford 250 ¾ ton Pick-up Truck with 9 foot plow. (Snow 7)

2009 New Holland TV 6070 Tractor mounted with snow blower. (Snow 15)

2001 Oshkosh Series H with MB 20 foot broom (Snow 47)

2002 Oshkosh Series H with MB 20 foot broom (Snow 48)

g) Storage of Snow and Ice Control Equipment. The International, 2 Oshkosh's, FWD, New Holland, Idaho & Ford 250 snow vehicles are stored inside of the SRE building.

h) FAA-Approved Chemicals. The airport normally has 2 – 4 tons of solid deicer and 220 - 800 gallons of liquid deicer on hand for runway anti-icing and ice control. An average of 46 tons of sand, in a heated attached garage in the SRE building, is also in storage. (Reference AC 150/5200-30c)

Section 4 – Snow Clearing Principles

a) Runway and Taxiways. The airport snow crew starts out using a staggered formation of plowing and brooming, full length and width, with the plow moving on to open priority taxiways after the brooms have established control of the priority runway.

Priority crossovers are opened as needed along with priority connecting taxiways and intersections. When needed, the blower will be used to remove the banks of snow along all of the edges. The lesser priorities are taken care of after the top priorities have been satisfied. A solid deicer, liquid deicer, and sand are used alone, or in combo when the need arises.

b) Terminal Ramps, Taxi-lanes, other Ramps. All ramps are normally cleaned by their appropriate owners/renters, but as needed the airport will assist when able.

c) NAVAIDs/Weather Observation Equipment. As needed, the airport will assist in clearing of snow around those areas.

d) Controlling/Mitigating Snow Drifts. Snow piles are blown with the snow blowers to control drifting, along with plowing of all edges when needed.

e) Methods for Ice Control and Removal-Chemicals. An FAA approved solid deicer and/or liquid deicer are applied on 1st priority and 2nd priority runway surfaces when needed. Sand that is pre-wetted with runway de-icing fluid may also be used. Sand is applied to all taxiways when needed as well. When braking action improves and stabilizes as per Mu readings, de-icing and sand materials are broomed off as much as the weather and temperature allow. (Reference AC 150/5200-30c and AC 91-7)

Section 5 - Runway Incursion/Surface Incident Mitigation Procedures

Past incursions have been and will continue to be reviewed whenever the need arises with the Waukegan Tower Chief. A safety and movement/non-movement meeting schedule is in place and has proven to be effective in helping all users of the airport.

a) Radio Communications. All snow removal vehicles monitor, and use the Waukegan ground frequency (121.65) for snow events during tower operations hours (6:00 am – 8:00 pm). After the tower closes, all snow vehicles monitor and use the tower air control frequency (120.05). Snow Control Center Vehicle (Snow 1), also advises and monitors Chicago Approach frequency (120.55). Additionally, after the tower closes, every 30 minutes during snow events, all snow vehicles will transmit their location on Waukegan Tower frequency.

b) Failed Radio Communication. In the event of failed radio communication between the tower and the snow vehicles, the tower shall use the appropriate light gun signals (*see page 16*) and/or a cell phone. (Reference AC 150/5200-30c)

c) Low Visibility and Whiteout Conditions. When these conditions exist, constant area updates as requested by the tower are used for all snow vehicles exact locations. Snow removal operations shall be discontinued when visibilities make vehicle operations unsafe.

Section 6 - Runway Surface Assessment Reporting

a) Runway Condition Reporting.

- A runway (and taxiway) condition report is provided whenever the pavement condition is worse than bare and wet.
- Runway surface conditions are reported to the Waukegan Tower when needed via radio or phone.
- When the cleared runway width is less than full width, and if there exists un-cleared runway edges with a different condition from cleared width, the Waukegan Tower is notified via radio and or phone.

Any time a change to the runway surface conditions occurs, which could be any of the following, the Waukegan Tower is notified via radio from the Snow Control Center Vehicle (Snow 1):

- active snow event
- plowing/brooming/deicing/sanding
- rapidly rising or falling temperatures
- rapidly changing conditions

Runway conditions are assessed by the Snow Control Center Vehicle during storm events and by Bowmonk and or Vericom brake meters tests, performed by Security personnel, the Airport Manager, or the Maintenance Supervisor during normal and off hours of tower operations. The results are communicated directly to the tower and airport management. (Reference DOT/FAA/TC-TN/3/22 dated June 2013 – TALPA ARC RCAM)

b) Runway Friction Surveys and Equipment. The Waukegan National Airport uses an FAA approved Bowmonk AFM2, and a Vericom RFM4000X Airfield Friction Meters that are calibrated and checked every year before the snow season begins. (Reference AC 150/5200-30c) (Reference DOT/FAA/TC-TN/3/22 dated June 2013 – TALPA ARC RCAM)

c) Conditions. The friction of the priority runway is checked when any kind of moisture is present and the temperatures are below freezing or there is accumulating snow. (Reference DOT/FAA/TC-TN/3/22 dated June 2013 – TALPA ARC RCAM)

d) When to Conduct. Friction assessments should be conducted if any of the following occurs:

- When the central portion of the runway, centered longitudinally along the runway center-line, is contaminate 500 feet or more.
- Immediately following any aircraft incident or accident on the runway
- When landing aircraft report conflicting low or high braking action terms.

(Reference DOT/FAA/TC-TN/3/22 dated June 2013 – TALPA ARC RCAM)

e) Friction Measuring Procedures - How to Conduct. Friction test are performed on each one third of the runway:

- lateral location from center-line (approximately 3 feet)
- direction (same direction as arrival aircraft)
- Runway zones: Touchdown, midpoint and roll out zones.

f) Friction Assessment Reporting. The Airport Manager, Maintenance Supervisor and the Waukegan Tower will be notified of all friction tests performed. (See pages 14 & 15) Friction values will be reported when:

- Compacted snow and/or ice are present on the center portion of the runway, and friction values are 40 or below on any zone of the runway.
- Friction values rise above 40 on all zones of any active runway that previously have a friction value below 40.
- Friction values go below 40 for any zone (touchdown, midpoint, and roll out) of any active runway that previously had MU's above 40.

g) Requirements for Runway Closures. Runways receiving a NIL braking assessment (either a PIREP or by a braking action assessment by the airport operator) and are unsafe for aircraft operations. Waukegan Airport will issue a NOTAM if a NIL braking condition exist, and the Waukegan Tower, Airport Manager, and Maintenance Supervisor will also be notified. The closure of a runway shall be determined by the Port District Executive Director or Airport Manager.

Section 7 – Post Season Activities

a) Post Season SICC Meeting. After each snow season, a SICC meeting will be held, typically in July to review the snow season issues and recommendations for changes. The same topics as pre-season should be reviewed.

Provide taskings for post season actions, i.e. Maintenance-inspect and repair equipment, replace sweeper heads, Operations – calibrate friction tester, Airport management – update SICP.

b) Airport Management Post Season Meeting. In July, airport management will review SICC minutes, and make any recommendations necessary for procedural changes to both the Snow and Ice Control Program if applicable.

Please Call For Snow Removal Notification

Office

Jim Stanczak 8:00 am – 4:30 pm/Monday thru Friday
(847) 244-0055 FAX (847) 244-3813
jstanczak@waukeganport.com

Security

Cell – (847) 276-1554 4:00 pm – 6:00 am
Office – (847) 263-5021

Maintenance Supervisor

Barney Baker
Cell – (847) 276-1555
bbaker@waukeganport.com

Airport Manager – Jim Stanczak

Home – (847) 244-3843
Cell – (847) 276-1553

Executive Director – Randy Rogers

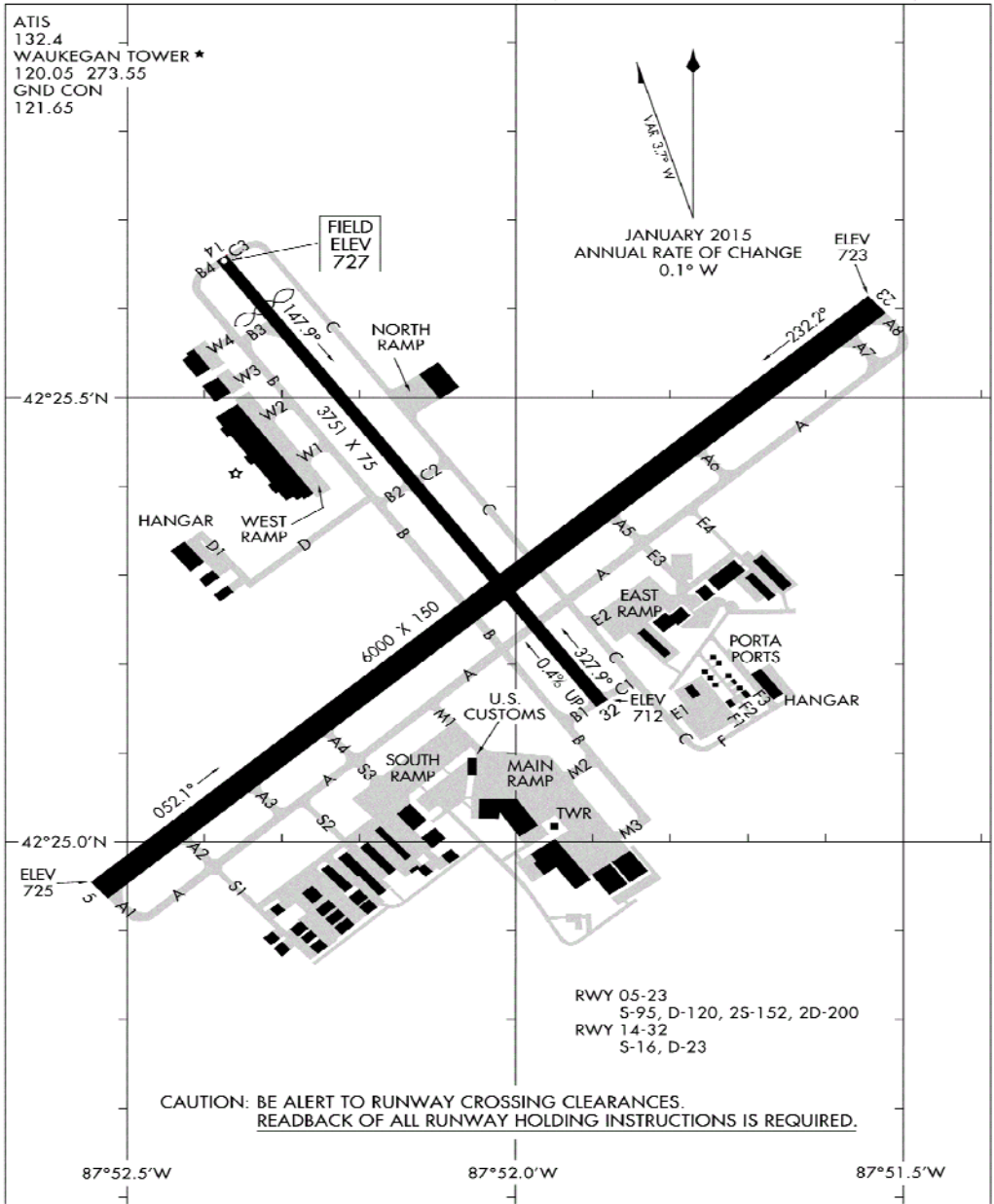
Office – (847) 244-3133
Cell – (847) 804-3133
rrogers@waukeganport.com

15064

AIRPORT DIAGRAM

AL-5324 (FAA)

WAUKEGAN RGNL (UGN)
CHICAGO/WAUKEGAN, ILLINOIS



EC-3, 17 SEP 2015 to 15 OCT 2015

EC-3, 17 SEP 2015 to 15 OCT 2015

AIRPORT DIAGRAM

15064

CHICAGO/WAUKEGAN, ILLINOIS
WAUKEGAN RGNL (UGN)

BRAKING ACTION

PIREPS

When braking action conditions less than Good are encountered, pilots are expected to provide a PIREP based on the definitions provided in the table below. Until FAA guidance materials are revised to replace the term Fair with Medium, these two terms may be used interchangeably. The terms “Good to Medium” and “Medium to Poor” represent an intermediate level of braking action, not a braking action that varies along the runway length. If braking action varies along the runway length, such as the first half of the runway is Medium and the second half is Poor, clearly report that in the PIREP (e.g., “first half Medium, last half Poor”).

CORRELATING EXPECTED RUNWAY CONDITIONS

The correlation between different sources of runway conditions (e.g., PIREPs, runway surface conditions and Mu values) *are estimates*. Under extremely cold temperatures or for runways that have been chemically treated, the braking capabilities may be better than the runway surface conditions estimated below. When multiple sources are provided (e.g., braking action medium, runway covered with ice and runway Mu is 27/30/28) conflicts are possible. If such conflicts occur, consider all factors including data currency and type of airplane a PIREP was given from. A valid PIREP or runway surface condition report are more reliable indicators of what to expect than reported runway Mu values.

Runway Friction Mu Reports

Mu values in the U.S. are typically shown as whole numbers (40) and are equivalent to the ICAO standard decimal values (.40). Zero is the lowest friction and 100 is the highest Mu friction. When the Mu value for any one-third zone of an active runway is 40 or less, a report should be given to ATC by airport management for dissemination to pilots. The report will identify the runway, the time of measurement, the type of friction measuring device used, Mu values for each zone and the contaminant conditions (e.g., wet snow, dry snow, slush, deicing chemicals). While the table below indicates information published by ICAO correlating runway friction measurements to estimated braking actions, the FAA cautions that *no reliable correlation exists*. Runway Mu values *can vary significantly* for the same contaminant due to measuring techniques, equipment calibration, the effects of contamination on the friction measuring device and the time passage since the measurement. *Do not* base landing distance assessments solely on runway Mu friction reports. If Mu is the only information provided, attempt to ascertain the depth and type of runway contaminants to make a better assessment of actual conditions.

BRAKING ACTION TABLE

Braking Action		Estimated Correlations		
Term	Definition	Runway Surface Condition	ICAO	
			Code	Mu
Good	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	<ul style="list-style-type: none"> ☐ Water depth of 1/8" or less ☐ Dry snow less than 3/4" in depth ☐ Compacted snow with OAT at or below -15°C 	5	40 & above
Good to Medium	-		4	39 - 36
Medium (Fair)	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be slightly reduced.	<ul style="list-style-type: none"> ☐ Dry snow 3/4" or greater in depth ☐ Sanded snow ☐ Sanded ice ☐ Compacted snow with OAT above -15°C 	3	35 -30
Medium to Poor	-		2	29 - 26
Poor	Braking deceleration is significantly reduced for the wheel braking effort applied. Potential for hydroplaning exists. Directional control may be significantly reduced.	<ul style="list-style-type: none"> ☐ Wet snow ☐ Slush ☐ Water depth more than 1/8" ☐ Ice (not melting) 	1	25 - 21
Nil	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain. <i>Note: Taxi, takeoff, and landing operations in Nil conditions are prohibited.</i>	<ul style="list-style-type: none"> ☐ Ice (melting) ☐ Wet Ice 	9	20 & below

Note: The ICAO term "Unreliable" approximates Nil. (Reference DOT/FAA/TC-TN/3/22 dated June 2013 – TALPA ARC RCAM)

ATC Light Gun Signals		
● ● ● = Flashing Green / White / Red		
COLOR	ON THE GROUND	IN THE AIR
Steady Green	Cleared For Takeoff	Cleared to Land
● ● ● ● ● ●	Cleared For Taxi	Return for Landing (to be followed by steady green)
Steady Red	Stop	Give way to other aircraft and Continue Circling
● ● ● ● ● ●	Taxi Clear of the Runway	Airport Unsafe, Do Not Land
● ● ● ● ● ●	Return To Starting Point	Not Applicable
● ● ● ● ● ●	Exercise Extreme Caution	Exercise Extreme Caution