U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: Airport Field Condition Assessments and Winter Operations Safety

Date: DRAFT **AC No:** 150/5200-30D
Initiated By: AAS-300 **Change:** 2

1 **PURPOSE.**

This advisory circular (AC) change is based on the inclusion of additional language and guidance to airport operators on snow removal around airports NAVAIDs and on when to issue new runway condition reports.

2 **APPLICATION.**

The information contained in this AC provides guidance for the airport operators in the development of plans, methods, and procedures for identifying, reporting, and removal of airport contaminants. The use of this guidance is an acceptable means of compliance, for airports certificated under Title 14 Code of Federal Regulations (CFR) part 139, Certification of Airports. The use of this AC is also a method of compliance for federally obligated airports. Furthermore, use of the specifications in this AC is mandatory for projects funded under the Airport Improvement Program (AIP) or with revenue from the Passenger Facility Charge (PFC) program.

3 **PRINCIPAL CHANGES.**

This AC change includes the following principal changes:

1. For paragraph 4.2.2.1, adds new note related to challenges of managing and monitoring more than one runway during winter operations.
2. For paragraph 4.2.2.4.1, adds additional language on the effect of snow accumulation around the localizer.
3. For paragraph 4.2.3.1, adds language about the need for coordination to assess snow accumulations for EMAS within the Localizer critical area.
4. For paragraph 5.7.2.2.1, adds additional language on changes that may generate updated surface condition reports.

5. For paragraph 5.7.2.2.2, adds new paragraph and note addressing condition reports that remain unchanged for an extended period.

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3. Regarding the use of displacement plows, ice and snow will always melt around runway centerline and touchdown zone light assemblies. However, under cold temperature and with LED fixtures, ice rings, termed "igloos," tend to form around them. In order to prevent damage to lights, use appropriate polyurethane cutting edges or shoes and casters on plow moldboards and on the front of rotary plows.

4. Rotary plows should throw snow a sufficient distance from runways/taxiways edges so adequate clearance is available between airplane wings and engine nacelles and the cast snow banks. Figure 4-1 shows desired maximum snow height profiles, which are based on airplane design groups.

Note: When conditions make it challenging to effectively manage and monitor more than one runway, airports with multiple runways should focus their efforts on the primary runway and taxi routes and initiate closures on any surface that cannot be safely maintained or monitored. As a best practice, many airports pre-emptively initiate closures at the onset of a known problematic weather event, allowing for the effective management of those areas that will remain available for air carrier use. At high traffic airports, this is accomplished in coordination with air traffic and local stakeholders to minimize impacts.

4.2.2.2 All drivers must maintain a safe distance between equipment operating in echelon (i.e., V-formation, close wing formation) in order to avoid accidental contact or accidents (see Figure 4-3, Figure 4-4, and Figure 4-5).

4.2.2.3 Obscured visual aids—in particular, in-pavement and edge lights, taxiway markings, runway markings (such as touchdown marking), airport guidance signs, and runway end identification lights (REIL), precision approach path indicator (PAPI) or visual approach slope indicator (VASI)—should be maintained free of snow and ice.

4.2.2.4 A covering of snow and ice or drifts may affect visual and electronic NAVAIDs. Any snow or ice that affects the signal of electronic NAVAIDs should be removed. When clearing with rotary plows and displacement plows, special procedures need to take into account the location of all NAVAIDs, especially to protect the guidance signal of instrument landing systems (ILS). The SICP needs to address the following situations:

4.2.2.4.1 Glide slope critical ground areas along the runway require that snow depths be limited in height to prevent signal loss or scattering. The accumulation of large amounts of snow can change the surface area in front of the Localizer and consequently may affect its radiated signal. A snow accumulation level of two (2) feet is the limit at which point the system specialist needs to start observing the condition of the Localizer signal. The depth of any snowbanks along the edges of the cleared dimensions of the GS snow clearance areas may have to be mitigated to less than two (2) feet where clearance requirements for some aircraft or movement areas my dictate

lower heights. Figure 4-2 provides graphic representations of the glide slope ground snow clearance areas with prescribed snow depth limitations according to type of facility and aircraft approach category. When snow depths exceed the specified depth limitations, minima are raised to the "localizer only" function until the conditions revert or are corrected.

Note: There is no substitute for the specialist's skill in observation and analysis of the LOC critical area for snow/ice depths, drifts, piling, or obstruction to signals, and exercising prudent judgements regarding requisite action. When a determination is made that snow or ice accumulations jeopardize signal strength from the Localizer or GS antenna, ensure a NOTAM is issued by the individual with NOTAM authority.

4.2.2.4.2 Two consecutive pilot reports of glide slope signal malfunctions generally result in raised minima (a NOTAM must be issued by the owner of the NAVAID). A few additional points should be considered:

- The 200-foot width dimension adjacent to the threshold might be wider for an antenna mast placed further out (see FAA Order 6750.49, *Maintenance of Instrument Landing System (ILS) Facilities).*
- The snow clearance areas illustrated in the figures are minimal in size.
- Snow clearing activities should not allow snow banks, mounds, or ridges exceeding 2 feet to be placed along the edges of the prescribed snow clearance areas.
- Snow banks should not be placed off the approach ends of runways, especially for CAT II/III operations.

Note: Snow banking operations need to take into account the guidance in Figure 4-1.

4.2.2.4.3 Visibility of signs (legibility) and lights should be maintained by certain prescribed clearing techniques or by performing post-clearing maintenance. Maintaining visibility can be better achieved by taking into account wind directions. For example, in crosswind conditions, cast in the downwind direction. Figure 4-3 through Figure 4-5 provide general guidance.

4.2.2.4.4 The snow depth height limitations noted in Figure 4-1 do not take into consideration airplane characteristics. That is, at some airports, airplane characteristics, such as engine clearances, may dictate lower snow banks than shown in Figure 4-2. The objective here is prevention by avoiding the introduction of hazardous snow banks, drifts, windrows, and ice ridges that could come into contact with any portion of the airplane wing or nacelle surface.

4.2.2.5 If the airport's operation involves the use of snow banks, their height profiles should be compatible with NAVAID ground requirements and offer sufficient clearance between airplane wings and engine nacelles to avoid

to determine what types of equipment are compatible with the EMAS bed and recommended clearing procedures and/or limitations. Any EMAS that may exists within the Localizer critical areas will require coordination with NAVAID system operators to help assess the snow accumulation on these surface to ensure the radiated signal is not affected. See AC 150/5220-22, *Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns,* for additional guidance.

4.2.3.2 Identify compatible deicing agents and the equipment, tools, or process for application.

assessment applies to the entire runway and can be read in reverse by pilots, the airport, air traffic, and other users. The associated thirds do not change if reported in reverse. This format will allow a pilot to identify where contaminants are located on a runway and where the biggest impact to friction may exist. Reporting from both ends of the same runway may cause confusion to pilots by advertising two sets of Runway Condition Codes for the same surface. This redundancy also unnecessarily clutters the NOTAM system which also adversely affects pilots. Do not report depths for compacted snow and ice. When reporting depth for standing water or slush, the depths are either 1/8 inch (3 mm) or less or greater than 1/8 inch (3 mm). When the cleared runway width is less than the full runway width, also report the conditions on the uncleared width (runway edges) if different from the cleared width. When the RCAM is properly utilized, specific runway condition codes will be generated for contaminants present based on the identified contaminant list in AC 150/5200-28 and FAA Order JO 7930.2. In the event the full width of the runway is not cleared, the runway condition code will be generated based on the contaminants present in the cleared portion of the runway (typically center 100 feet). Additionally, the airport operator must keep in mind that the entire width of the runway is still usable and available to the aircraft and must be safely maintained. This means that while contaminant depths may vary from the center cleared portion to the remaining portions or edges of the runway, the condition of the outlying portions must not present an operational hazard.

5.7.2.2 **When to Issue New Runway Condition Reports.**

5.7.2.2.1 Runway condition reports must be updated any time a change to the runway surface condition occurs. Changes that initiate updated reports include weather events, the application of chemicals or sand, or plowing or sweeping operations. Airport operators should not allow airplane operations on runways after such activities until a new runway condition assessment has been completed identifying the changed condition(s) and the effectiveness of mitigations and treatments and ensuring no new hazards have been inadvertently introduced. This assessment should be reported via the NOTAM system, reflecting the current surface condition(s) of affected runways.

1. At certificated airports, such changes to the runway surface condition must be updated and appropriately disseminated to airplane operators so they are aware of the current conditions before continuing with their operations. During active snow events or rapidly changing conditions (e.g., increasing snowfall, rapidly rising or falling temperatures), airport operators should maintain a vigilant runway inspection process to ensure accurate runway condition reports. During these types of events, an airport operator's active snow and ice control activities may allow the airport to maintain the previously reported runway conditions for extended periods during an event. In this case, the airport can continue

to use the existing runway condition report (NOTAM), so long as the condition can be maintained. If the runway contamination type changes or the depth exceeds the previously reported condition, a new runway condition report should be issued.

2. Although a runway condition report (NOTAM) may be accurate for several hours at a time, it is advisable to update the runway condition report (NOTAM) times more frequently, to avoid giving the impression of outdated information. Updating this information routinely will also reduce the number of inquiries from aircraft operators. While pilot braking action reports provide valuable information, these reports may not apply to the full length of the runway as such evaluations are limited to the specific sections of the runway surface in which the airplane wheel braking was used. In addition, runway condition reports should be updated at least at the beginning of each shift of operational personnel, when conditions are not changing but contaminants are present (e.g., following a snow event where frozen contaminants remain after an airport's mitigating actions).

5.7.2.2.2 When runway conditions reports have not changed between assessments and an extended period of time has elapsed between reported conditions, it is recommended that the current NOTAM also be updated, since each report will reflect the time of observation. This will serve as an indication to pilots of the airport's continual monitoring and/or snow removal efforts. Airport operators should maintain a vigilant runway monitoring regiment to ensure accurate runway condition reports are provided to airport users as long as the runway remains open.

Note: When reporting updated runway conditions via the NOTAM system, an airport operator should also communicate this information to its users via all available means (ATCT, TRACON, and ARTCC, CTAF, and other established local communication methods) to ensure that aircraft in close proximity to the airport have the most current conditions report available. There are times when an inbound aircraft or an aircraft ready to depart may not have the benefit of the latest condition report if conditions have changed from those used to conduct initial flight planning.

5.7.2.2.3 Whenever any of the previously identified circumstances apply, the airport operators can use mitigation to improve runway conditions, which in turn may lead to a higher RwyCC. For example, on first assessment of the runway conditions, an airport operator may determine the identified contaminants generate an RwyCC of "0". A RwyCC of "0" is equivalent to Nil braking conditions, which requires the runway be closed until mitigation actions are performed and the unsafe conditions no longer exist. After the mitigation actions are completed, the airport operator would reassess the

runway conditions and determine whether a different runway condition applies. Based on the contaminants *now* present (type, depth, and percentage), the runway condition code may change or no longer be reported if the amount of contamination is 25% or less of the overall runway length and width or cleared width (if not cleared from edge to edge). This process differs from the upgrade process, which is based on improvement of friction within the existing contaminants versus the mitigation or removal of those contaminants (see paragraph 5.4.3.2).

5.8 Requirements for Runway, Taxiway, and Apron and Holding Bay Closures.

5.8.1 The previously accepted philosophy of the aviation industry was that the airport operator was obligated to provide an accurate description of the surface conditions, and it was solely up to the pilot to decide if a surface was safe for use. Accident data do not support such a philosophy, and the FAA has determined that operations on surfaces reported as having NIL braking are inherently unsafe. Admittedly, this is a conservative approach considering the variation in pilot braking action reporting. The NOTAM system does not accept a NIL braking action report, and if attempted, prompts the airport operator to close the surface and perform mitigating actions until the unsafe condition no longer exists.

Note: To clarify, the FAA has determined that a NIL condition (i.e., minimal or non-existent braking condition) is an unsafe condition. The NOTAM system does not accept a NIL braking action report, and if attempted, prompts the airport operator to close the surface and perform mitigating actions until the unsafe condition no longer exists.

5.8.2 Certificated and obligated airports are required to maintain available airport surfaces in a safe operating condition at all times and to provide prompt notification when areas normally available are less than satisfactorily cleared for safe operations. To that end, at a minimum, the following circumstances require action by the airport operator:

5.8.2.1 **Runways**.

5.8.2.1.1 A NIL pilot braking action report (PIREP), or NIL braking action assessment by the airport operator, indicates a potentially unsafe condition. An acceptable action is for the airport operator to promptly close the particular surface prior to the next flight operation (and NOTAM that closure) until it is satisfied that the NIL condition no longer exists.

5.8.2.1.2 When previous PIREPs have indicated GOOD or MEDIUM braking action, two consecutive POOR PIREPs indicates that surface conditions may be deteriorating. An acceptable action is for the airport operator to conduct a runway assessment prior to the next operation (unless the airport operator has instituted its continuous monitoring procedures described in paragraph 5.9). If the airport operator is already continuously monitoring runway