Transport Canada Transports Canada

Advisory Circular

Subject: **Changes to Runway Surface Condition Reporting**

Issuing Office:	Civil Aviation	Document No.:	AC 300-005
File Classification No.:	Z 5000-34	Issue No.:	01
RDIMS No.:	7595645-V3	Effective Date:	2012-09-21

TABLE OF CONTENTS

1.0 INTRODUCTION

(1) This Advisory Circular (AC) is provided for information and guidance purposes. It describes an example of an acceptable means, but not the only means, of demonstrating compliance with regulations and standards. This AC on its own does not change, create, amend or permit deviations from regulatory requirements, nor does it establish minimum standards.

1.1 Purpose

(1) The purpose of this document is to introduce and explain changes to Runway Surface Condition reporting resulting from changes to the *Canadian NOTAM Procedures Manual* (CNPM), and to introduce a new version of the *Aircraft Movement Surface Condition Report* (AMSCR) and *Canadian Runway Friction Index* (CRFI) form.

1.2 Applicability

(1) This document applies to aerodrome operators.

1.3 Description of Changes

(1) Not applicable.

2.0 REFERENCES AND REQUIREMENTS

2.1 Reference Documents

(1) It is intended that the following reference materials be used in conjunction with these documents:

(a) *Aeronautics Act* (R.S., 1985, c. A-2)*;*

(b) Part III, Subpart 01 of the *Canadian Aviation Regulations* (CARs) — *Aerodromes*;

(c) Part III, Subpart 02 of the CARs — *Airports*;

(d) Aerodrome Safety Circular (ASC) 2000-002— *Aircraft Movement Surface Condition Reporting (AMSCR) for Winter Operations;*

(e) ASC 2001-011— *Introduction of the Proposed Regulation and Standards Concerning Airport Winter Maintenance and Planning*;

(f) *Canadian NOTAM Procedures Manual*.

2.2 Cancelled Documents

(1) Not applicable.

(2) By default, it is understood that the publication of a new issue of a document automatically renders any earlier issues of the same document null and void.

2.3 Definitions and Abbreviations

(1) The following **definition**s are used in this document:

(a) **NOTAM**: A notice distributed by means of telecommunications containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations;

(b) **NOTAMJ**: A special series NOTAM notifying the presence of hazardous conditions due to contaminants on runways by means of a specific format;

(c) **SNOWTAM**: A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format;

(d) **SNOWiz**: An internet application for the direct entry of runway surface condition by an accountable source, the output being both a NOTAMJ and a SNOWTAM. SNOWiz is also an internet interface that allows dialog between automated reporting systems and the NAV CANADA database.

(2) The following **abbreviations** are used in this document:

(a) **AC:** Advisory Circular;

(b) **AMSCR**: *Aircraft Movement Surface Condition Report*;

(c) **CARS**: *Canadian Aviation Regulations*;

(d) **CNPM**: *Canadian NOTAM Procedures Manual*;

(e) **CRFI**: *Canadian Runway Friction Index*;

(f) **ICAO**: International Civil Aviation Organization;

(g) **RSC**: Runway Surface Condition;

(h) **NPA**: Notice of Proposed Amendment; and

(i) **TCCA**: Transport Canada Civil Aviation.

3.0 BACKGROUND

(1) NAV CANADA is introducing an internet based process for delivering *Aircraft Movement Surface Condition Reports* (AMSCRs), including the *Canadian Runway Friction Index* (CRFI), where it is available, into NAV CANADA's NOTAM distribution process.

(2) NAV CANADA's web portal is called SNOWiz and is being developed in support of their initiative to provide the International Civil Aviation Organization (ICAO) format SNOWTAMs for international users desiring them. The current NOTAMJ format NOTAM will continue to be published until further notice.

(3) To facilitate the new SNOWiz AMSCR delivery process Transport Canada Civil Aviation (TCCA) is making available an alternative AMSCR form.

(4) In Canada, airport operator runway inspectors have delivered their completed AMSCRs to NAV CANADA via faxed or hand delivered completed inspection forms or verbally by very high frequency (VHF) radio or telephone. This process has required transcription of the delivered AMSCR report into NOTAM format prior to distribution.

(5) The SNOWiz will provide airports with the means to directly input AMSCRs into NAV CANADA's Aeronautical Data Management System to create and distribute NOTAMs. This will facilitate accelerating the delivery of vital information to pilots and reduce opportunities for input errors. The procedures, described in the *Canadian NOTAM Procedures Manual* (CNPM), are embedded in the SNOWiz portal.

(6) The SNOWiz will, in addition to the current AMSCR reports, concurrently permit airports to input information on airport lighting outages and snow accumulations off of the aircraft manoeuvring surfaces. Runway inspectors will be able to input AMSCRs into SNOWiz at a suitable computer station with an internet connection, either in an airport office or at a mobile computer installed within a runway inspection vehicle or elsewhere. The option will remain to deliver the report to NAV CANADA by telephone, fax, etc… where a computer option is not available.

(7) A new AMSCR form has been developed that matches the data collection process with the SNOWiz data input procedure and is available to airports for current use. The intent of the new form is to facilitate required data input without missing vital information.

(8) As airport operators gain experience with the new AMSCR form, we fully expect that they will identify areas for improvement. Airport operators are encouraged to submit suggestions for the improvement of the form to Aerodrome Standards. We would welcome your suggestions and they can be sent to AARTinfodoc@tc.gc.ca.

4.0 DEFINITIONS

(1) The Aerodrome Safety Circular (ASC) 2001-011 — *Introduction of the Proposed Regulation and Standards Concerning Airport Winter Maintenance and Planning* – references the Notices of Proposed Amendments (NPAs) 2001-257 and 2001-258, which contain contaminant and other definitions. Some of these definitions are found in the CNPM and some are not. The CNPM also contains some definitions that were not in the NPAs but are used in international reporting vernacular. Changes have been made to the CNPM to include the definitions in the NPAs and modify some definitions to reflect the intent of the NPA definitions. Appendix A contains all of the definitions in the NPAs and CNPM related to AMSCR reporting and identifies the commonality between the definitions. In some cases the wording is identical however in others it is different, but the intent of the definition is equivalent.

5.0 VALIDITY

(1) NPA 2001-258 proposes that the airport operator provide an AMSCR at the commencement of the published reporting hours, following a significant change in conditions, and every 8 hours at a minimum during the published reporting hours. This effectively results in a maximum validity for a NOTAMJ of 8 hours. The airport operator should be submitting a new AMSCR that results in a new NOTAMJ at least every 8 hours or cancelling the NOTAMJ.

(2) For the purpose of managing the database, NAV CANADA will consider a NOTAMJ to have maximum validity of 24 hours and will cancel the NOTAMJ after 24 hours and remove it from the system

6.0 REPORTING CRITERIA

6.1 General

(1) In order to ensure the validity of the data being entered into the SNOWiz, each data field has a range of acceptable entries (parameters). This results in new constraints for some of the items reported by the person inspecting the runway.

6.2 Percentage of Contaminant

(1) In Canada, the percentage of contaminant has been reported as it is observed.

(2) A limitation of the SNOWiz data input process is that contaminant coverages are limited to increments of 10% (i.e.; 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, & 100%) and requires that the total coverage add up to 100%. It will not be possible to report 35% ice patches and 65% bare and dry using SNOWiz. TCCA recommends that the observed percentage of contaminant be rounded up or down to the nearest 10% increment (i.e.: < 5% - round down to the 10% increment below and ≥ 5% - round up to the next 10% increment above).

(3) For example:

(a) Previously the observed percentage of contaminant may have been reported as: 50% compacted snow; 25% ice patches; and 25% bare and dry.

(b) TCCA recommends that of the two conditions that were previously considered equal (25% & 25%), the one that has the greater coverage be reported as 30% and the one with the lesser coverage be reported as 20%.

(c) The possible difference of 10% between the observed percentage of contaminant and the reported value is not significant for the pilot operating an aircraft.

6.3 Depth of Contaminant

(1) Inches and feet will continue to be used to report depths. Below 2 inches, the decimal values for 1/8", 1/4", 1/2", 3/4", 1", and 1½" are to be used: 0.13, 0.25, 0.5, 0.75, 1.0, and 1.5. Above 2 inches, whole values at 1 inch increments are used: 3", 4", 5", 6", etc.

(2) When the depth is variable, only one value may be entered and this should be the maximum depth. The remarks section may be used to report a range of values for depth.

6.4 Types of Contaminant

(1) The SNOWiz will limit the types of contaminant or layers of contaminants that may be reported on a runway to 3 types. This is a significant change for the observer from reporting every type of contaminant that is observed on a runway. There are minimal implications for flight operations.

7.0 RUNWAY LIGHTS & SNOW BANKS BESIDE RUNWAY

(1) The NOTAMJ has not allowed for the inclusion of snow banks beside the runway or any information concerning the visibility of runway lights if the lights are partially buried by snow. The SNOWTAM allows for the inclusion of these types of information.

(2) Information concerning snow banks and runway lights may now be included in the NOTAMJ.

8.0 TAXIWAYS AND APRONS

(1) The reporting of conditions on taxiways and aprons has always been included in the AMSCR form; however this information was only distributed locally. It will now be possible to include this information in NOTAMJs resulting from AMSCRs inputted via SNOWiz.

9.0 CONCLUSION

(1) It is expected that NAV CANADA will phase in use of the SNOWiz over the next two years. NAV CANADA will advise airport operators as the SNOWiz becomes available for their use.

(2) When the SNOWiz is available for use, and the airport operator wishes to use a form to prepare inputs to SNOWiz, TCCA recommends that the airport operator use the newly developed SNOWiz version of the AMSCR form.

(3) The new AMSCR form is designed to accommodate the SNOWiz input process and may have to be adapted for specific airport circumstances.

(4) The new AMSCR form is designed to reflect the changes in the *Canadian NOTAM Procedures Manual*.

(a) AMSCR 2011 PDF

(b) AMSCR 2011 Excel

(c) AMSCR 2011 User Guide (Excel)

(5) For more information on the SNOWiz, please contact: Caroline Doucet at NAV CANADA, 613-248-4287, doucetc@navcanada.ca.

10.0 INFORMATION MANAGEMENT

(1) Not applicable.

11.0 DOCUMENT HISTORY

(1) Not applicable.

12.0 CONTACT OFFICE

For more information, please contact the appropriate TCCA Regional Office – Aerodromes at the following address :

http://www.tc.gc.ca/eng/regions.htm

Suggestions for amendment to this document are invited, and should be submitted via:

AARTinfodoc@tc.gc.ca

[Original signed by]

Aaron McCrorie
Director, Standards
Civil Aviation
Transport Canada

Transport Canada documents or intranet pages mentioned in this document are available upon request through the Contact Office.

APPENDIX A — COMPARISON OF TRANSPORT CANADA AND NAV CANADA TERMS

Term	Transport Canada	Canadian NOTAM Procedures Manual Glossary	Comments
AMSCR or Aircraft Movement Surface Condition Report	Means a report that details the surface conditions of all movement areas at an airport including runways, taxiways and aprons.	The report that details the surface conditions for all aircraft movement areas including runways, taxiways and aprons.	Nil
Bare and damp	Means a surface condition that appears wet but the moisture depth cannot be readily determined.	A surface condition that appears wet, but where the moisture cannot be readily detected.	Nil
Bare and dry	Means a surface condition that is not damp or wet, and has no observed contaminants.	A surface condition that is not damp or wet, and has no observed contaminant.	Nil
Bare and wet	Means a surface condition where there is a thin layer of water and the layer is 3mm (1/8 inch) or less in depth.	A surface condition where there is a thin layer of water and the layer is 3 mm (0.13 inch) or less in depth.	Nil
Cleared width	Means the narrowest portion of the runway width that has been cleared of loose contaminants.	The width of the narrowest portion of a runway that has been cleared to the greatest extent possible of contaminants.	Nil
Compacted snow	Means snow that has been compressed into a solid mass that resists further compression.	Snow compressed into a solid mass that resists further compression and holds together or breaks up into lumps if picked up.	Nil
Contaminant	Means material on a surface including standing water, slush, snow, compacted snow, ice or frost, sand and ice control chemicals.	Material on a surface including water, slush, snow compacted snow, ice or frost.	TC includes sand and ice control chemicals as contaminants.
CRFI or Canadian runway friction index	Means the average of friction measurements taken on runway surfaces with freezing or frozen contaminants present, using a mechanical or electronic decelerometer.	The average of the runway friction as measured by a mechanical or electronic decelerometer.	Nil
Dry snow	Not defined.	Snow that is neither compacted on nor bonded to a surface, including fresh fallen or old standing dry snow. If compacted by hand, dry snow falls apart upon release.	TC considers loose snow and dry snow to be equivalent.

Frost	Means ice crystals formed from airborne moisture that has condensed on a surface whose temperature is below 0°C.	Ice crystals formed from airborne moisture that has condensed on a surface whose temperature is below 0°C.	Nil
Frozen ridges	Not defined.	Rough uneven ice surface like frozen water ripples.	
Ice	Means water that has frozen on a surface and includes the condition commonly known as “black ice” and the condition where compacted snow has turned into a polished ice surface.	Water that has frozen on a surface and includes the condition commonly known as “black ice” and the condition where compacted snow has turned into a polished ice surface.	Nil
Ice control chemicals	Means chemicals used to prevent ice formation, to prevent ice from bonding to a surface or to break up or melt ice on a surface.(CHEM)	Chemicals used to prevent ice formation, to prevent ice from bonding to a surface or to break up or melt ice on a surface.(CHEM)	Nil
Loose snow	Means fresh falling dry snow or drifting or old standing snow that is neither compacted on nor bonded to a surface.	Not defined.	TC considers loose snow and dry snow to be equivalent.
Percentage of contaminant	Means the amount of each contaminant present on the estimated surface of the aircraft movement area and reported separately as a percentage (%) of the whole surface.	The amount of each contaminant present on the estimated surface of the runways and reported separately as a percentage (%) of the whole surface.	Nil
Runway Surface Condition” or “RSC”	Means the portion of the AMSCR which reports the surface condition of the runway.	The portion of the AMSCR which reports the surface condition of the runway.	Nil
Sand	Means small particles of crushed angular mineral aggregates or natural sand material used to improve runway surface friction levels.	Small particles of crushed angular mineral aggregates or natural sand material used to improve runway surface friction levels.	Nil
Significant change	Means, with respect to runway surface condition includes but is not limited to: changes in type of contaminant, such as from dry snow to wet snow; measurable changes in depth of contaminant; following the application or removal of sand or chemicals; following snow removal or sweeping; changes in conditions caused by rapid increases or decreases in temperature.	With respect to runway surface condition includes but is not limited to: changes in type of contaminant, such as from dry snow to wet snow; measurable changes in depth of contaminant; following the application or removal of sand or chemicals; following snow removal or sweeping; changes in conditions caused by rapid increases or decreases in temperature.	Nil

Slush	Means partially melted snow or ice, with a high water content, from which water can readily flow.	Partially melted snow or ice, with a high water content, from which water can readily flow. Slush displaces with a splatter with a heel-and-toe slap down motion against the ground.	Nil
Snow bank	Not defined.	A heap or mound of snow created mechanically that is higher than the surrounding snow cover.	
Snow drift	Not defined.	A heap or mound of snow created by action of the wind. Snowdrifts resemble sand dunes and are formed in a similar manner, namely, by wind moving light snow and depositing it when the wind is slowed, usually against a stationary object. Snow normally crests and slopes off toward the surface on the windward side of a large object. On the leeward side, areas near the object are a bit lower than surrounding areas, but are generally flatter.	
Standing water	Means water having a depth of more than 3mm (1/8 inch).	Water having a depth of more than 3mm (0.13 inch).	Nil
Trace or TR	Means the presence on a surface of a contaminant that can be visibly detected but cannot be readily measured.	The presence of a surface contaminant that can be visibly detected but cannot be readily measured.	Nil
Wet ice	Not defined.	Ice covered with a thin film of water.	
Wet snow	Means snow that will stick together when compressed, but will not readily allow water to flow from it when squeezed.	Snow that sticks together to form a snowball but does not readily allows water to flow from it when compressed by hand.	Nil
Windrow	Means a ridge of material, such as snow or gravel, created by airside maintenance equipment.	A ridge of material, such as snow or gravel, created by airside maintenance equipment.	Nil