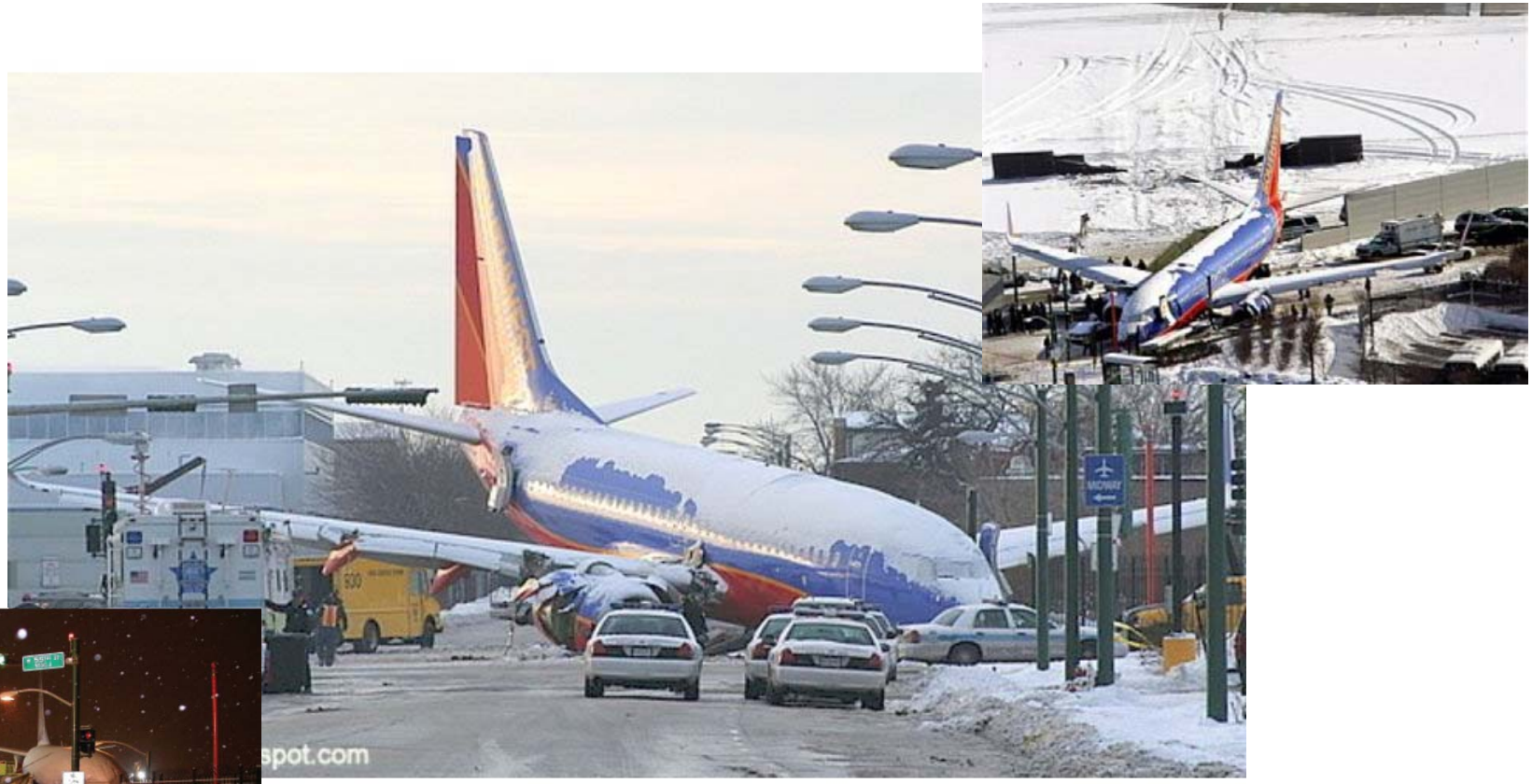
ASSESSING AND REPORTING AIRPORT CONDITIONS

REVISED PROCEDURES

Presented to: **Alaska Flight Service**

By: **Alberto Rodriguez, Lead Airport Certification / Safety Inspector, Safety & Standards Branch**

Date: **November 17, 2015**


MIDWAY

•Regulatory Authorities

✈FAA (Airports, Flight Standards, Certification, NOTAMS, Rulemaking, Legal)

✈Transport Canada

✈Brazilian Certification Authority

✈EASA (Limited Participation)

•Other Organizations

✈Air Transport Association

✈Airline Pilots Association

✈Airports Council International

✈Allied Pilots Association

✈National Air Carrier Association

✈National Business Aviation Association

✈National Transportation Safety Board

✈Neubert Aero Corporation

✈Regional Airline Association

✈Southwest Airlines Pilot Association

✈Allied Pilots Association

•Airplane Operators

•*Part 121*

✈ ABX Air

✈ Alaska

✈ American Eagle

✈ American

✈ Continental

✈ Delta

✈ Express Jet

✈ Federal Express

✈ Northwest

✈ Pinnacle

✈ Southwest

✈ United

✈ UPS

✈ US Airways

•Airports

✈Cherry Capital

✈Chicago Airport System

✈Chicago O'Hare

✈Grand Rapids Regional

✈Minneapolis/St. Paul Airport System

•Airplane Operators

•*Part 91-K/125/135*

✈Alpha Flying, Inc

✈Bombardier Flexjet

✈Chantilly Air

✈Flight Works

✈Jet Solutions

✈Conoco Phillips Alaska

✈Net Jets

✈Pogo Jet, Inc

•Airplane Manufacturers

✈Airbus

✈Boeing

✈Bombardier

✈Cessna

✈Eclipse

✈Embraer

✈Gulfstream

✈Hawker

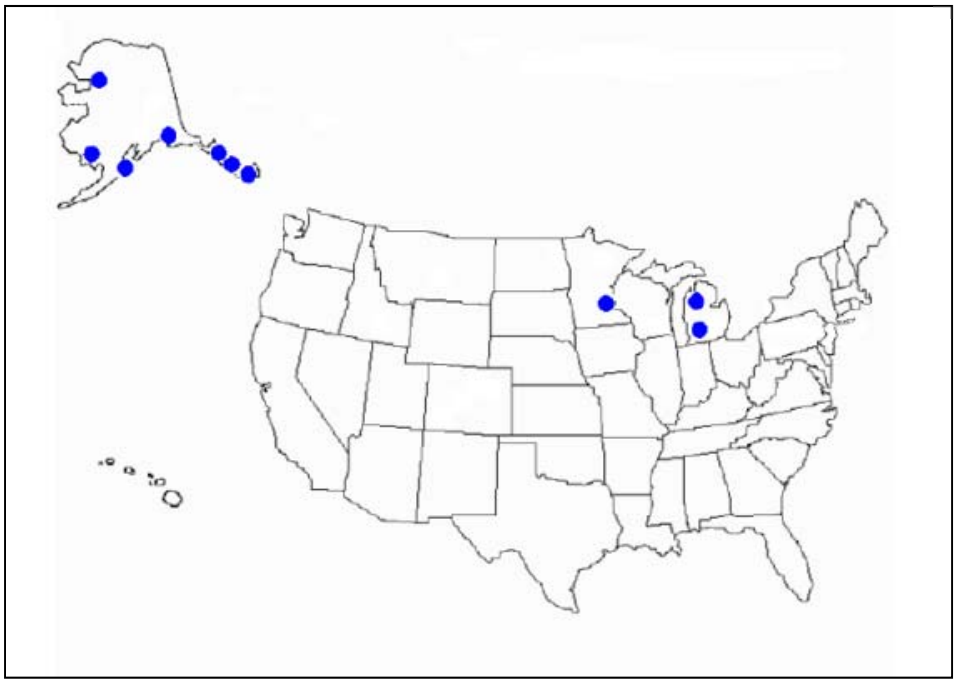
TALPA ARC Recommendations

- **Methods for assessing runway conditions**
- **Reporting of braking action by pilots**
- **Reporting of runway conditions through airport operators, the NOTAM system, and ATC agencies**
- **Airplane performance data**
- **Before landing/departing performance assessments**
- **Standardized condition reports terms**

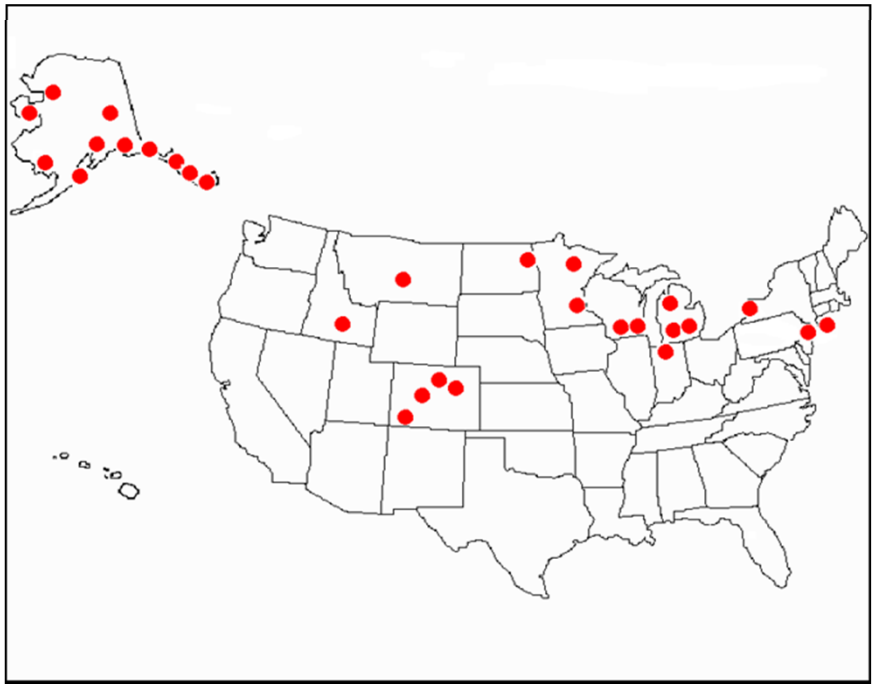
- **R** Runway
- **C** Condition
- **A** Assessment
- **M** Matrix

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	40 or Higher	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	Good
-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 depth of:*** • Dry Snow • Wet Snow ***Warmer than -15°C outside air temperature:*** • Compacted Snow	3	39 to 30	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	Medium
Greater than 1/8 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	29 to 21	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 on top of 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

First Validation Winter 2009-2010



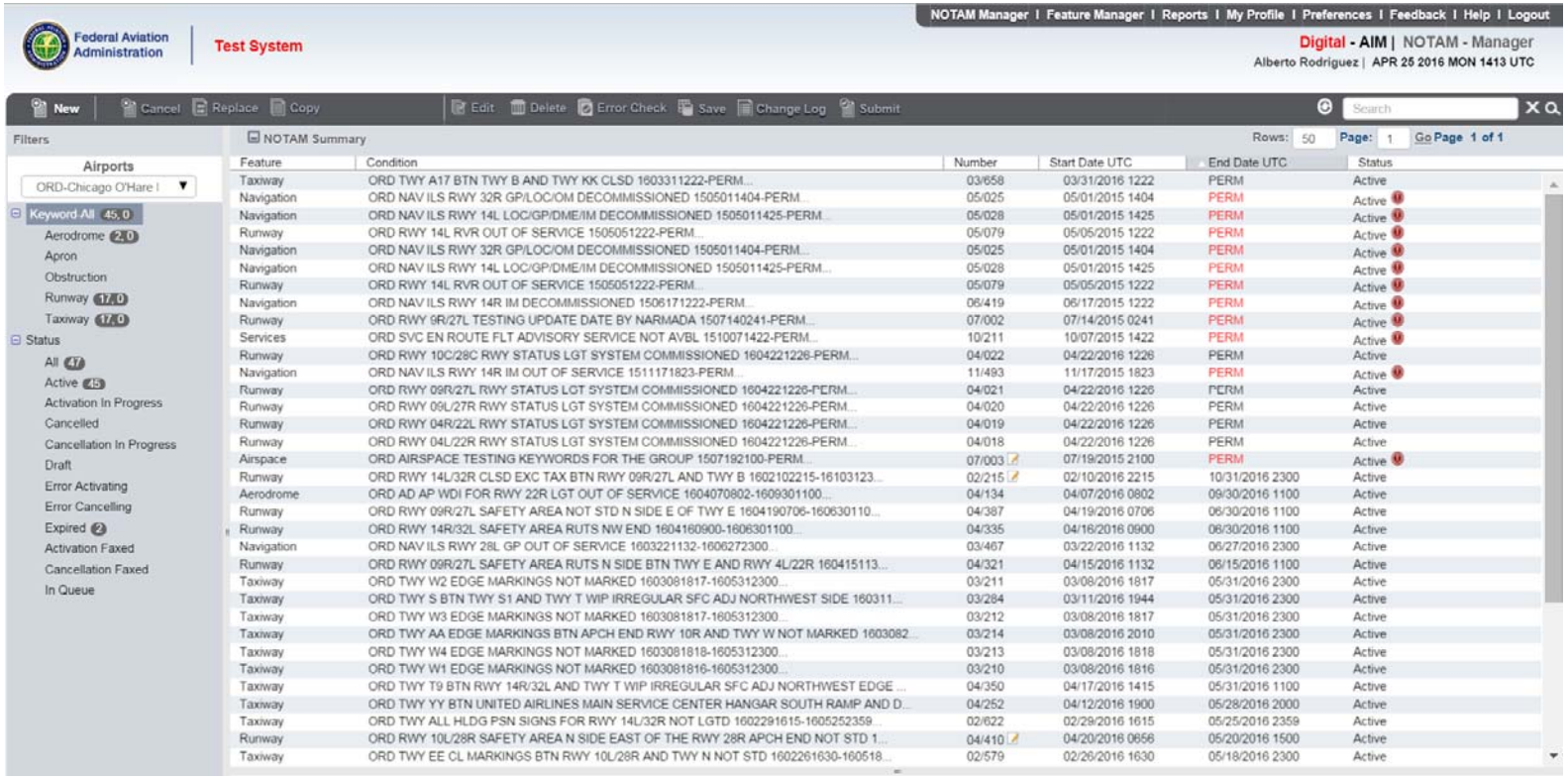
Second Validation Winter 2010-2011



Changes… Already In Effect

- **2008 AC Changes (Closure triggers, friction testing subjectivity)**
- **Published Reportable Contaminant List**
- **Standardized terminology and reporting methods**
- **Expanded NOTAM System for filing Field Condition (FICON) NOTAMs**
  - Sortable FICON Information for end users
  - ➢ Domestic and International Compatibility
  - ➢ Real-time / Instantaneous reporting.

TALPA & NOTAM System(s) Changes



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HOW THE RCAM WORKS

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• Wet Ice [2] • Slush over Ice[2] • Water on top of 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

Runway Condition Codes

- **Why is it better than Mu?**
  - Less subjective
  - More substantive
- **What does it mean to the Pilot?**
  - Type and depth of contaminant(s).
  - Estimated aircraft braking action to be anticipated.
  - Calculative performance data.

Related Changes… 2016 - 2017 Season

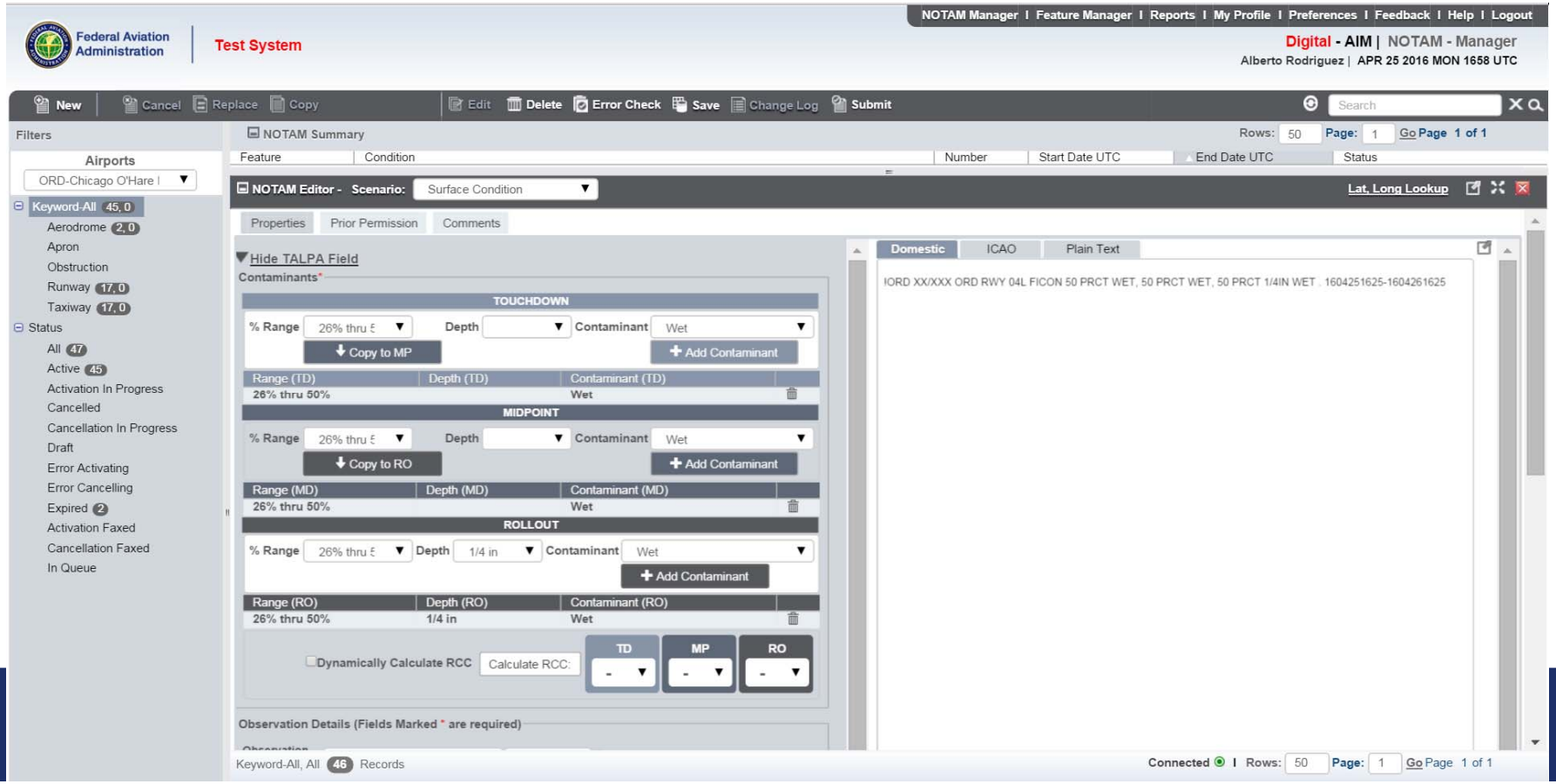
- **NOTAM System will serve as the primary method for disseminating field condition information / FICON NOTAMs.**
- **No longer reporting friction values (Mu).**
- **No longer reporting vehicle braking for Runway conditions.**
- **Percentage Based Reporting**
- **Reporting runway conditions in thirds.**

Coverage	Range
10%	10% or less
25%	11% thru 25%
50%	26% thru 50%
75%	51% thru 75%
90%	76% thru 90%
100%	91% thru 100%

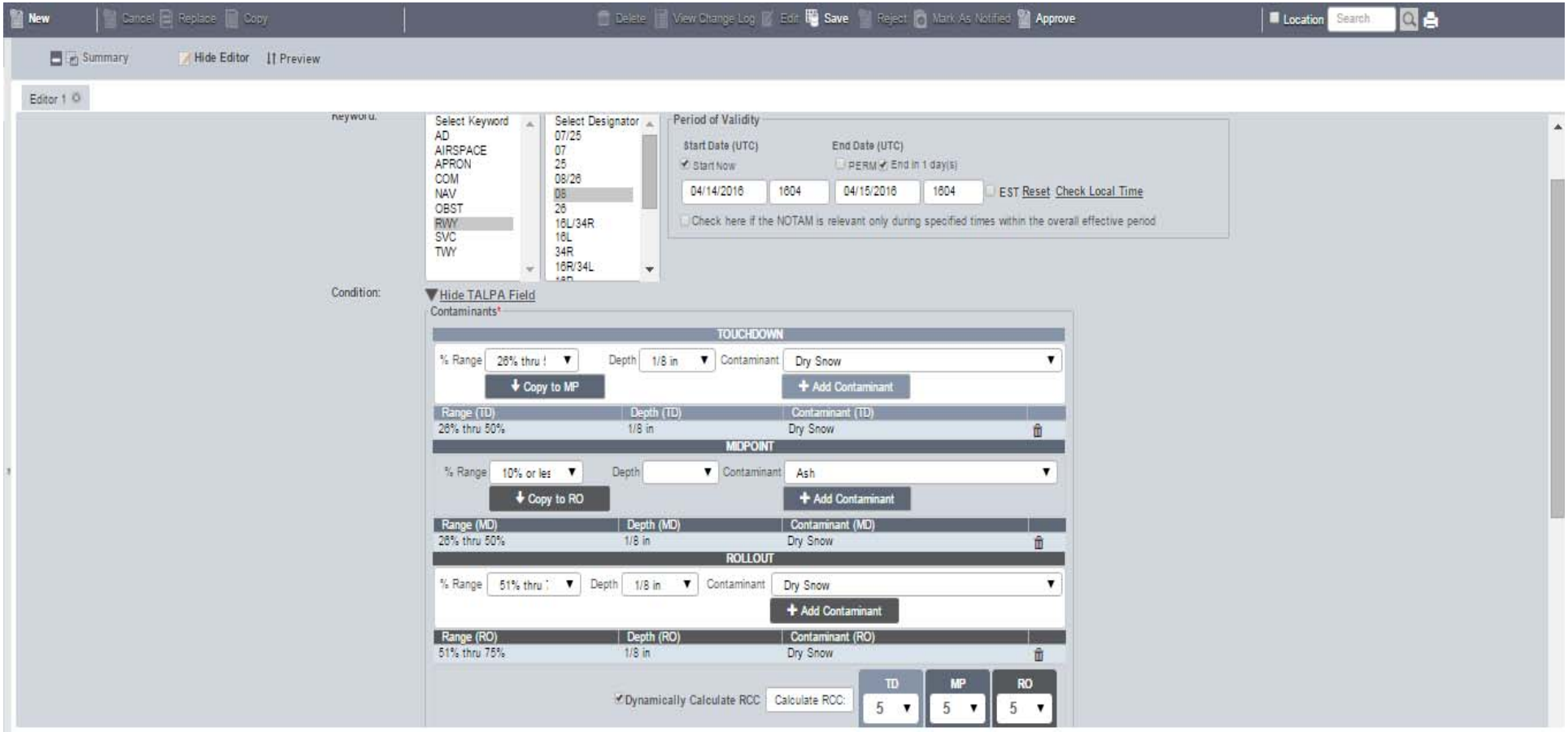
Reporting Airport Condition Information

- **Runway Condition Codes are disseminated via one or more of the following methods:**
  - Federal NOTAM System, preferably through NOTAM Manager or equivalent system(s);
  - Airport Traffic Control Facility (corresponding Tower, Center, Tracon, etc.);
  - Flight Service Station (FSS) (as applicable); and
  - Directly from airport operator via Common Traffic Advisory Frequency (as applicable).

NOTAM Manager



E-NOTAM II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Cancel
Replace
Copy
Delete
View Change Log
Edit
Save
Reject
Mark As Notified
Approve
Location
Search
Summary
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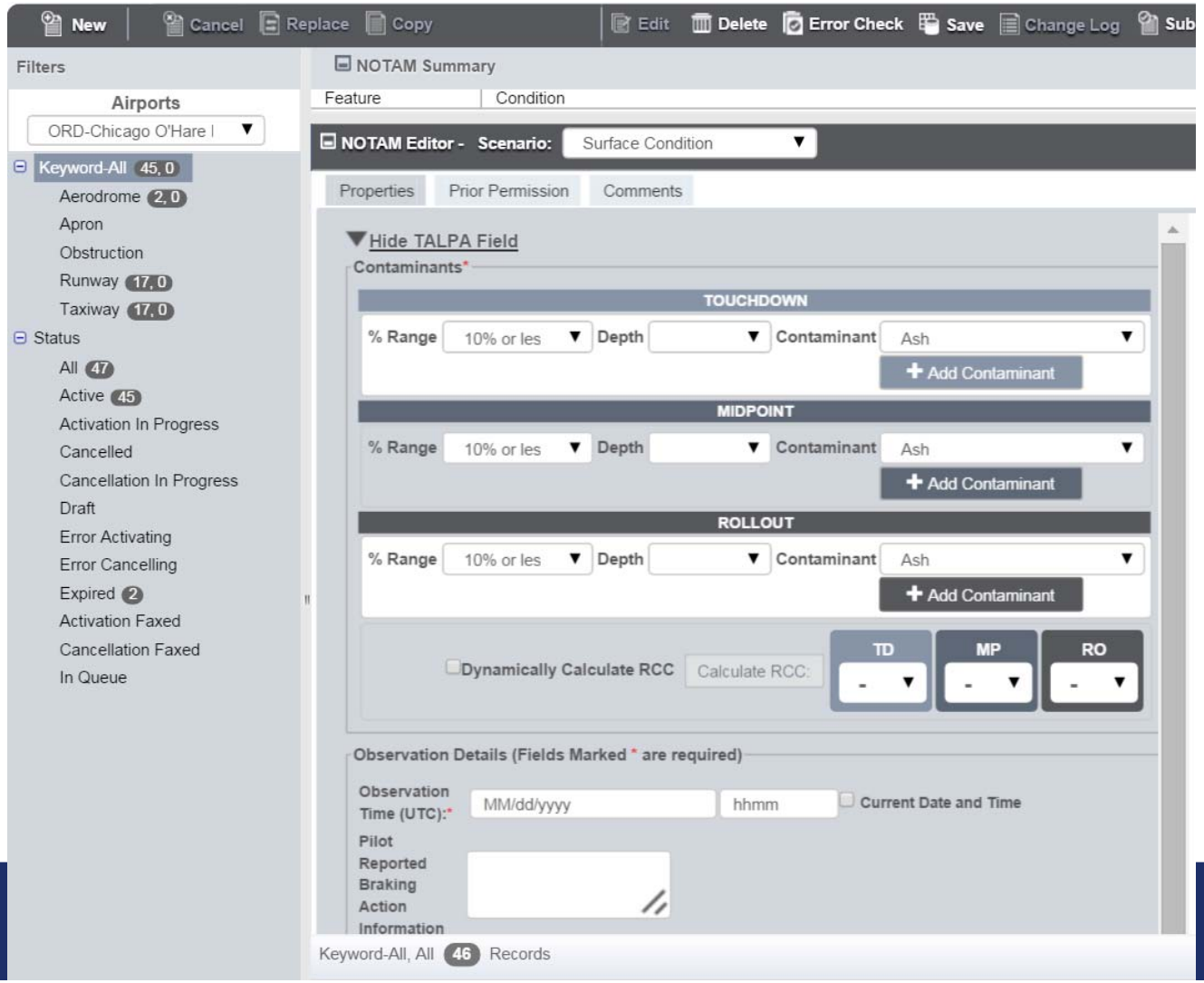
Editor 1
Keyword:
Select Keyword
AD
AIRSPACE
APRON
COM
NAV
OBST
RWY
SVC
TWY
Select Designator
07/25
07
25
08/26
08
26
16L/34R
16L
34R
16R/34L
Period of Validity
Start Date (UTC)
Start Now
End Date (UTC)
PERM
End in 1 day(s)
04/14/2016
1604
04/15/2016
1604
EST
Reset
Check Local Time
Check here if the NOTAM is relevant only during specified times within the overall effective period
Condition:
Hide TALPA Field
Contaminants*
TOUCHDOWN
% Range
26% thru !
Depth
1/8 in
Contaminant
Dry Snow
Copy to MP
Add Contaminant
Range (TD)
Depth (TD)
Contaminant (TD)
26% thru 50%
1/8 in
Dry Snow
MIDPOINT
% Range
10% or les
Depth
Contaminant
Ash
Copy to RO
Add Contaminant
Range (MD)
Depth (MD)
Contaminant (MD)
26% thru 50%
1/8 in
Dry Snow
ROLLOUT
% Range
51% thru :
Depth
1/8 in
Contaminant
Dry Snow
Add Contaminant
Range (RO)
Depth (RO)
Contaminant (RO)
51% thru 75%
1/8 in
Dry Snow
Dynamically Calculate RCC
Calculate RCC:
TD
MP
RO
5
5
5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Error Check
Save
Change Log
Sub
Filters
Airports
ORD-Chicago O'Hare I
Keyword-All 45, 0
Aerodrome 2, 0
Apron
Obstruction
Runway 17, 0
Taxiway 17, 0
Status
All 47
Active 45
Activation In Progress
Cancelled
Cancellation In Progress
Draft
Error Activating
Error Cancelling
Expired 2
Activation Faxed
Cancellation Faxed
In Queue
NOTAM Summary
Feature
Condition
NOTAM Editor - Scenario: Surface Condition
Properties
Prior Permission
Comments
Hide TALPA Field
Contaminants*
TOUCHDOWN
% Range 10% or les
Depth
Contaminant Ash
Add Contaminant
MIDPOINT
% Range 10% or les
Depth
Contaminant Ash
Add Contaminant
ROLLOUT
% Range 10% or les
Depth
Contaminant Ash
Add Contaminant
Dynamically Calculate RCC
Calculate RCC:
TD
MP
RO
Observation Details (Fields Marked * are required)
Observation Time (UTC):*
MM/dd/yyyy
hhmm
Current Date and Time
Pilot Reported Braking Action Information
Keyword-All, All 46 Records

RCAM Driven NOTAM Examples

Uniform Coverage example:

!ORD XX/XXX ORD RWY 04L FICON 5/5/5 50 PRCT 1/8IN DRY SN . 1604251625-1604261625

Different Contaminants In Each Third:

!ORD XX/XXX ORD RWY 04L FICON 5/3/5 50 PRCT WET, 50 PRCT 1/8IN WET SN OVER COMPACTED SN, 50 PRCT 1/8IN SLUSH . 1604251625-1604261625

Two Different Contaminants In Each Third:

!ORD XX/XXX ORD RWY 04L FICON 3/5/2 50 PRCT WET AND 50 PRCT 1/8IN WET SN OVER COMPACTED SN, 50 PRCT WET AND 25 PRCT 1/8IN WET SN OVER COMPACTED SN, 10 PRCT 1/4IN SLUSH OVER ICE AND 75 PRCT 1/4IN SLUSH . 1604251625-1604261625

Examples:
Aircraft Operator Side

Airbus ROPS and TALPA

- **In flight, predicted stopping point based on TALPA ARC recommendations**
  - Includes 15% operational safety margin
  - On A350, can select runway condition by either runway surface description or braking action
- **On ground, predicted stopping point transitions to being based on actual deceleration being achieved**
- **In-flight landing distance check required to ensure alerts will not trigger during a normal approach**

RWY CONDITION
Information & selection means

A350 XWB

Destination runway reminder
(cyan if LDG runway ≠ FMS runway

PERF APPR data
If the RWY is unknow, all green values are empty.

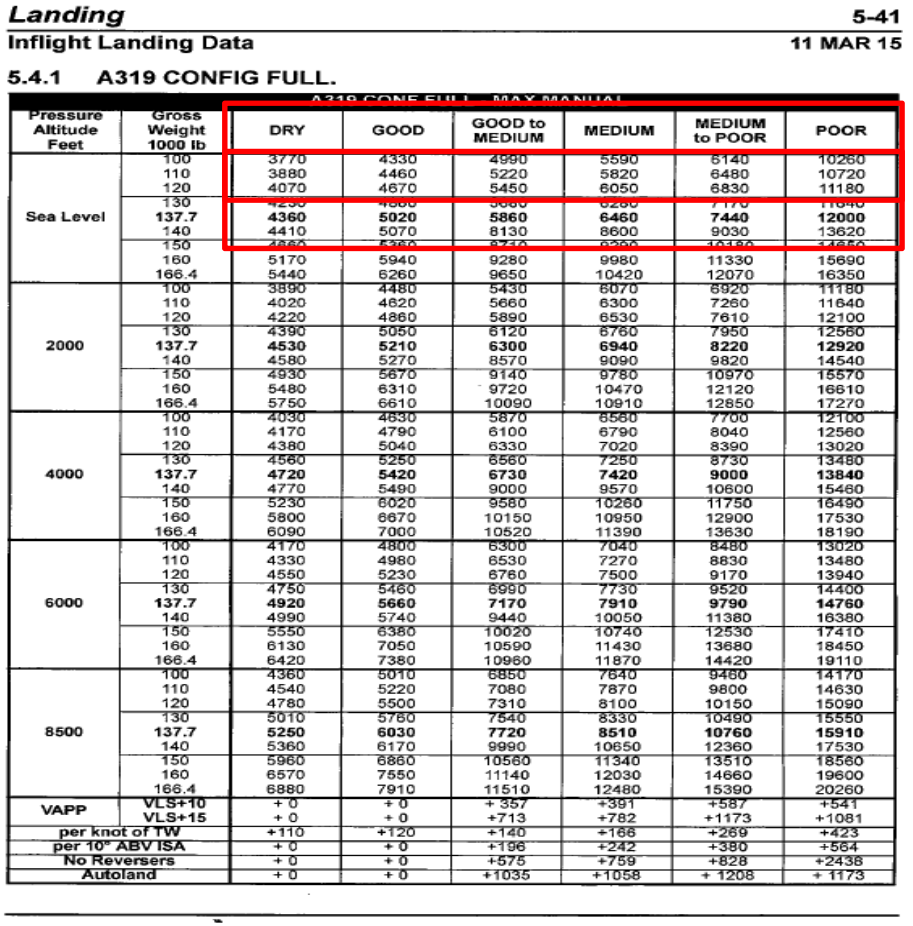
Active condition in green

Active condition in amber
if rwy is TOO SHORT.

Multi-condition assessment for the selected runway
Continuous amber/black rubber.

AIRBUS

Airline Operating Manuals



Landing 5-41

Inflight Landing Data 11 MAR 15

5.4.1 A319 CONFIG FULL.

A319 CONF FULL - MAX MANUAL

Pressure Altitude Feet	Gross Weight 1000 lb	DRY	GOOD	GOOD to MEDIUM	MEDIUM	MEDIUM to POOR	POOR
Sea Level	100	3770	4330	4990	5590	6140	10260
	110	3880	4460	5220	5820	6480	10720
	120	4070	4670	5450	6050	6830	11180
	130	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	137.7	**4360**	**5020**	**5860**	**6460**	**7440**	**12000**
	140	4410	5070	8130	8600	9030	13620
	150	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	160	5170	5940	9280	9980	11330	15690
	166.4	5440	6260	9650	10420	12070	16350
2000	100	3890	4480	5430	6070	6920	11180
	110	4020	4620	5660	6300	7260	11640
	120	4220	4860	5890	6530	7610	12100
	130	4390	5050	8120	8760	7950	12560
	137.7	**4530**	**5210**	**6300**	**6940**	**8220**	**12920**
	140	4580	5270	8570	9090	9820	14540
	150	4930	5670	9140	9780	10970	15570
	160	5480	6310	9720	10470	12120	16610
	166.4	5750	6610	10090	10910	12850	17270
4000	100	4030	4630	5870	6580	7700	12100
	110	4170	4790	6100	6790	8040	12560
	120	4380	5040	6330	7020	8390	13020
	130	4560	5250	6560	7250	8730	13480
	137.7	**4720**	**5420**	**6730**	**7420**	**9000**	**13840**
	140	4770	5490	9000	9570	10600	15460
	150	5230	6020	9580	10260	11750	16490
	160	5800	6670	10150	10950	12900	17530
	166.4	6090	7000	10520	11390	13630	18190
6000	100	4170	4800	6300	7040	8480	13020
	110	4330	4980	6530	7270	8830	13480
	120	4550	5230	6760	7500	9170	13940
	130	4750	5460	6990	7730	9520	14400
	137.7	**4920**	**5660**	**7170**	**7910**	**9790**	**14760**
	140	4990	5740	9440	10050	11380	16380
	150	5550	6380	10020	10740	12530	17410
	160	6130	7050	10590	11430	13680	18450
	166.4	6420	7380	10960	11870	14420	19110
8500	100	4360	5010	6850	7640	9460	14170
	110	4540	5220	7080	7870	9800	14630
	120	4780	5500	7310	8100	10150	15090
	130	5010	5760	7540	8330	10490	15550
	137.7	**5250**	**6030**	**7720**	**8510**	**10760**	**15910**
	140	5360	6170	9990	10650	12360	17530
	150	5960	6860	10560	11340	13510	18560
	160	6570	7550	11140	12030	14660	19600
	166.4	6880	7910	11510	12480	15390	20260
VAPP	VLS+10	+ 0	+ 0	+ 357	+391	+587	+541
	VLS+15	+ 0	+ 0	+713	+782	+1173	+1081
per knot of TW		+110	+120	+140	+166	+269	+423
per 10° ABV ISA		+ 0	+ 0	+196	+242	+380	+564
No Reversers		+ 0	+ 0	+575	+759	+828	+2438
Autoland		+ 0	+ 0	+1035	+1058	+ 1208	+ 1173

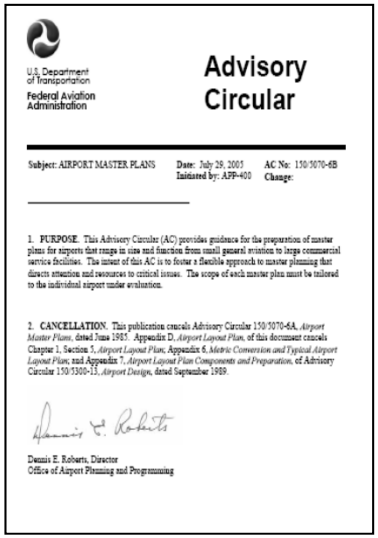
ICAO Implementation and Global Harmonization

- **Transport Canada**
- **Japanese**
- **Italian**
- **British**
- **Scandinavian**

Guidance Documents

Advisory Circulars:

- 150/5200-30, Airport Field Condition Assessments and Winter Operations Safety
- 150/5200-28, Notices to Airmen (NOTAMs) for Airport Operators
- 150/5320-12, AC 150/5320-12C - Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces
- 91-79, Mitigating the Risks of a Runway Overrun Upon Landing
- 25-31, Takeoff Performance Data for Operations on Contaminated Runways
- 25-32, Landing Performance Data for Time-of-Arrival Landing Performance Assessments



U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: AIRPORT MASTER PLANS Date: July 29, 2005 AC No: 150/5070-6B
Initiated by: AFP-400 Change:

1. **PURPOSE.** This Advisory Circular (AC) provides guidance for the preparation of master plans for airports that range in size and function from small general aviation to large commercial service facilities. The intent of this AC is to foster a flexible approach to master planning that directs attention and resources to critical issues. The scope of each master plan must be tailored to the individual airport under evaluation.

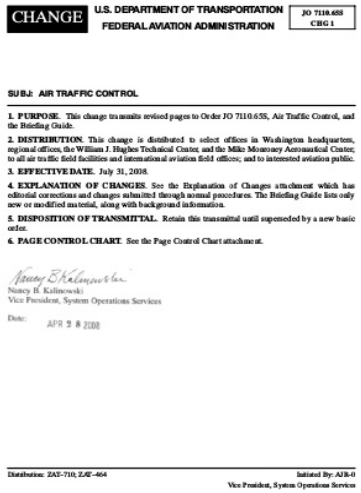
2. **CANCELLATION.** This publication cancels Advisory Circular 150/5070-6A, *Airport Master Plans*, dated June 1985. Appendix D, *Airport Layout Plan*, of this document cancels Chapter 1, Section 3, *Airport Layout Plan*; Appendix 6, *Metric Conversion and Typical Airport Layout Plan*; and Appendix 7, *Airport Layout Plan Components and Preparation*, of Advisory Circular 150/5300-13, *Airport Design*, dated September 1989.

Dennis E. Roberts, Director
Office of Airport Planning and Programming

Guidance Documents cont’

Orders:

- JO 7930.2, Notices To Airmen (NOTAM)
- JO 7110.65, Air Traffic Control
- JO 7210.3, Facility Operation Administration
- JO 7110.10, Flight Services



CHANGE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION JO 7110.65S CHG 1

SUBJ: AIR TRAFFIC CONTROL

1. PURPOSE. This change transmits revised pages to Order JO 7110.65S, Air Traffic Control, and the Briefing Guide.

2. DISTRIBUTION. This change is distributed to select offices in Washington headquarters, regional offices, the William J. Hughes Technical Center, and the Mike Monroney Aeronautical Center; to all air traffic field facilities and international aviation field offices; and to interested aviation public.

3. EFFECTIVE DATE. July 31, 2008.

4. EXPLANATION OF CHANGES. See the Explanation of Changes attachment which has editorial corrections and changes submitted through normal procedures. The Briefing Guide lists only new or modified material, along with background information.

5. DISPOSITION OF TRANSMITTAL. Retain this transmittal until superseded by a new basic order.

6. PAGE CONTROL CHART. See the Page Control Chart attachment.

Nancy B. Kalinowski
Vice President, System Operations Services

Date: APR 2 8 2008

Distribution: ZAT-710; ZAT-464 Initiated By: AJR-0
Vice President, System Operations Services

Comments and Questions?

Alberto Rodriguez

Lead Airport Certification / Safety Inspector

Safety & Standards Branch

alberto.rodriguez@faa.gov