Factual Report – Attachment 3

Mandatory Occurrence Report

AIR TRAFFIC CONTROL

DCA17IA148

Air Traffic Mandatory Occurrence Report

SFO-M-2017/07/08-0001

1. Reporting FAC ID	2. Date UTC (dd/mm/yyyy)	3. Time UTC	4. Significant Occurrence?
S F O	0 8 0 7 2 0 1 7	0 6 5 6	● Yes ○ No

5. MOR reported by (select one):

○ Controller providing services	○ FLM	○ Internal Facility Review
● CIC	○ Aircraft Owner/Operator	○ Electronically Detected
○ External Facility Referral	○ Hotline (Describe in summary)	○ Other (Describe in summary)

Brasher warning given? ● Yes ○ No Training in progress? ○ Yes ● No

AIRPORT ENVIRONMENT MORs

I1. MOR type - airport environment MORs involving aircraft on the airport surface:

- ○ Aircraft on movement area/runway safety area other than expected/intended
  - Other aircraft within one-mile of landing threshold? ○ Yes ○ No
- ○ Canceled takeoff clearance or flight crew aborted takeoff after crossing hold-short line
- ○ Aircraft unintentionally maneuvered off runway or taxiway
- ○ Aircraft within ILS protected area other than expected/intended
  - Other aircraft on final approach - ID _____ Type/Suffix _____

I1a. Occurrence location:

Describe where on the airport surface the occurrence occurred

I1b. Aircraft information:

Aircraft ID	Aircraft type/suffix	Facility communicating with A/C	Position communicating with A/C	Frequency

I2. MOR type - airport environment MORs involving aircraft landing/departing/on low-approach:

- ● Aircraft landed/departed or attempted to land/depart runways/surface other than expected/intended
- ○ Aircraft landed/departed or executed low approach to closed runway (or closed portion thereof)
- ○ Turbojet go-around within 1/2 mile of arrival threshold (non-flight training)

I2a. Occurrence location:

Describe where on the airport surface the occurrence occurred

I1b. Aircraft information:

Aircraft ID	Aircraft type/suffix	Facility communicating with A/C	Position communicating with A/C	Frequency
ACA759	A320	SFO	LC	120.5

I3. MOR type - airport environment MORs involving vehicles on the airport surface:

- ○ Vehicle on movement area/runway safety area other than expected/intended
  - Aircraft within one-mile of landing threshold? ○ Yes ○ No
- ○ Vehicle within ILS protected area other than expected/intended
  - Aircraft on final approach - ID _____ Type/Suffix _____

I3a. Occurrence location:

Describe where on the airport surface the occurrence occurred

I3b. Vehicle information:

Vehicle type:	Vehicle ID	Facility communicating with vehicle	Position communicating with vehicle	Frequency
○ Airport Operator ○ Contractor ○ FAA ○ A/C not for flight ○ Tug ○ Tug with aircraft ○ Other (summary)				

I4. MOR type - airport environment MORs involving pedestrian on the airport surface:

- ○ Pedestrian on movement area/runway safety area other than expected/intended
  - Aircraft within one-mile of landing threshold? ○ Yes ○ No

I4a. Occurrence location:

Describe where on the airport surface the occurrence occurred

I4b. Pedestrian name (if known):

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SUMMARY

J1. Summary - provide a brief summary for all MORs in this section that will provide enough information for QA to understand what occurred. Include information about items that require additional information in the specific MOR you are reporting.

ACA759 sent around on short final due to being lined up to land on taxiway charlie with traffic on charlie. Confusion on final as to which was the taxiway and which was the runway due to lighting and construction.

QC Updated: Beginning at 1-mile final, the ASSC added green bars along all of the runway intersections of 28R, indicating that it detected an aircraft on short final for that runway. At 0.6-mile final, ACA759 began a transmission asking LC if the runway was clear because the pilots saw lights on the runway. This transmission ended at 0.3-mile final. At that point, the ASSC still had green bars along the length of 28R. However, ACA759's target dropped off of the ASSC screen (including facility-required subwindow showing finals and extended centerlines) for approximately 11 seconds. NAS Engineering event analysis indicates that at that time, "ACA759 became non-displayable due to leaving the coverage volume of the ASSC." ACA759 overflew UAL1 (B789) and PAL115 (A343). LC then issued go-around instructions and, while the aircraft was starting its climbout, ACA759 overflew UAL863 (B789) and UAL1118 (B739).

On Saturday 7/8 at 1140LCL, facility management and QC support specialist interviewed the captain of ACA759 on a non-recorded telephone line. The Brasher Warning was issued at that time. Capt. Jim Kisses, [redacted]certificate [redacted] Interview notes attached to MOR.

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SEPARATION

Was this a loss of separation?

O Yes O No | Applicable Separation Rule: _____

Separation Used:

O Course Divergence O MARSA O Mode C Interlace O Opposite Course (Report Passing) O Other Facility

O Procedure/Waiver O Report/Observe Leaving Altitude O Terminal Transition O Tower Visual Separation

O VFR Aircraft O Visual Approach O Visual Separation O Other

RISK ANALYSIS

Was this a Risk Analysis Event?

O Yes ● No | RAE Score: _____

PILOT DEVIATION

Was this a possible pilot deviation?

● Yes O No | Preliminary Number: **P-WP-T-SFO-17-015**

SURFACE EVENT

Was this a possible Surface Event?

● Yes O No | Classification: **SI**

VEHICLE/PEDESTRIAN DEVIATION

Was this a possible Vehicle/Pedestrian Deviation?

O Yes O No | Preliminary Number: _____

NMAC

Was this a NMAC?

O Yes O No | NMAC Number: _____

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	Runway Safety Findings
	ACA759/A320 attempted wrong surface landing, surface incident, aligned with and flew over Taxiway Charlie, overflying aircraft on the taxiway. Closest Proximity was 0 Horizontal and less than 100 Vertical. Background. 1-mile final, the ASSC detected an aircraft, ACA759, on short final for Runway 28R. At 0.6-mile final, ACA759 asked LC if the runway was clear. LC answered that the runway was clear. A/C 1 target then dropped off of the ASSC screen including facility-required sub-window showing finals and extended centerlines) for approximately 11 seconds due to leaving the coverage volume of the ASSC. ACA759 overflew over flew UAL863 B789 and UAL1118 B739. Flight crew initiated go around over the taxiway followed by LC then issuing go-around instructions, ACA 759 overflew B789 and B739 by less than 100 feet.

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QA SUMMARY

ACA759 was on a visual approach to Runway 28R and cleared to land. Runway 28L was closed. ACA759 lined up to land on Taxiway Charlie with four aircraft holding on the taxiway. ACA759 questioned if there was traffic on the runway and Local Control stated there was not and re-issued the landing clearance. ACA759 initiated a go around dmoss

Air Canada Capt. Jim Kisses Interview Notes
Jim Kisses, [redacted] certificate [redacted]

SFO Air Traffic Manager Mark Paulus, Operations Manager David Hearn and Support Specialist Peter Sachs interviewed the Captain of ACA759, Jim Kisses, via telephone on a non-recorded line at 1140 local on Saturday 7/8. It was during this phone call that Paulus issued the Brasher Warning to the Captain.

Kisses stated that this was the flight crew's first leg of the day, and first day of their trip. He had been off for two days beforehand. The flight left Toronto (CYYZ) about 35 minutes late but was otherwise normal. Kisses said he had flown to SFO "thousands of times" but that, because they were landing at 3am EDT, "fatigue is an issue, no question."

The crew was flying the FMS Bridge Visual 28R approach. They did not have the localizer for 28R programmed into the FMS, because they were not required to when flying VMC on a visual approach.

When the flight crew began the transition from the offset leg to final, Kisses said it "didn't look good to us" and that "When I broke it off … instead of transitioning left, we stayed on thinking this [the taxiway] was the runway." Both Kisses and First Officer Matt Dampier noticed simultaneously that they weren't lined up with Runway 28R. Kisses thought they had initiated a go-around at about 550 feet AGL.

Kisses said they tried more than once to question the runway assignment and landing clearance but had difficulty doing so because of frequency congestion. "He was very pleasant … but he was way too busy, one guy doing two jobs there," Kisses said of the Local Controller.

Kisses said they initiated the go-around shortly before the Local Controller instructed them to go around. On the subsequent approach, they flew an approach with the ILS programmed to back it up.

Kisses said that the runway and approach lights were bright enough, but (in response to a question from Paulus) that having the approach lights set to a higher intensity would have helped them discern the runway.

Capt. Al Bedsole Interview Notes

Delta 521, a B737-900 from ATL, landed about two minutes before ACA759. Capt. Al Bedsole [redacted] talked with Peter Sachs on Saturday 7/8/17 at 1730 local time on a non-recorded telephone line. Bedsole said this was his first time coming to SFO in five months, but that he had not made a night approach into SFO in about two years.

This flight also flew the FMS Bridge Visual 28R. They had backed up the visual segment with the 28R ILS in the FMS. However, in Boeing aircraft, the FMS only uses the ILS signal for vertical guidance on the flight director. There is no course guidance available.

Bedsole said he and his first officer had difficulty discerning whether they were aligned with the correct runway, and that they weren't certain until their landing lights illuminated the runway numbers over the threshold. They saw one set of approach lights, for 28R, but the line of aircraft on Taxiway Charlie created a convincing visual illusion of that also being a runway.[1] Bedsole said it was confusing seeing one set of approach lights to the left, relative to the two sets of "runway" lights they saw, and knowing that they were supposed to land on 28R.

While they were aware that 28L was closed, the flight crew did not know in advance that the 28L approach lights were also turned off. In the approximately 90 seconds between completing the visual sidestep and landing, the flight crew of DAL521 manually tuned the ILS28R frequency into their FMS to verify that they were, in fact, aligned with that runway. Cockpit workload was very high at this point on short final, Bedsole said, in addition because the aircraft had been vectored off the STAR outside of ARCHI, with a 180-degree turn to rejoin that left the crew with little time to reprogram the FMS.

Capt. Bedsole suggested several things that would have improved their situational awareness:

- If all aircraft had been cleared for the ILS 28R instead of the QBA/FMS Bridge Visual 28R, there would have been no ambiguity about whether they were aligned for the correct runway, since they would have built-in course guidance on their MFD and Flight Director.
- Keeping the approach lights for 28L turned on, even with the runway closed, would have made it clear from afar which runway was 28R and which was 28L.
- Increasing the intensity of the 28R approach lights may have helped, as would have turning on the sequenced flashers.

[1] Two of the four aircraft on Taxiway Charlie were Boeing 787-9s. These aircraft have LED beacons and anti-collision lights, not strobes. The wingspan of the 787-9 is 197 feet, almost the same as the 200-foot-wide runways at SFO. Thus, on approach, pilots would see white LED runway edge lights for 28R, and blinking white (1-second interval) LED anti-collision lights on Charlie with the same distance between them as the runway edge rights. The pilots would also likely have seen nosewheel taxi lights pointed toward them producing a similar effect as runway centerline lights. The red beacon lights could have been mistaken for threshold lights, obstruction lights, or other lights in the runway environment.