DCA23LA125

AIRPORTS

Specialist's Factual Report – Attachment 1

FAA Response To NTSB Questions

July 28, 2023

NTSB question: How did the FAA develop the pre-determined locations of the runway entrance lights and takeoff hold lights at JFK prior to the 2009 site survey?

ATO Response:

1. Extensive research conducted found no record of specific discussions regarding the JFK RWSL array locations.
2. The normal process used by the FAA when it comes to determining RWSL locations is to coordinate with local Air Traffic and Airport Authority to come up with the number and location of light arrays based on several factors:
    - documented airfield hot spots
    - discussions with local ops and controllers
    - planned airfield projects
    - ground traffic taxi patterns
    - funding
3. All RWSL array locations at all RWSL airports were also reviewed by the Runway Safety Office and the Research & Technology Development Office as well as Headquarters Air Traffic.
4. A review of the RWSL installation process at JFK shows that the initial request for the RWSL array locations were determined by local FAA Air Traffic and Port Authority Personnel in 2009. This request did not include any request for THL arrays on Runway 4L-22R. The FAA RWSL PMO installed all of the requested RWSL arrays in two phases. The original MOA (8/2009) only included Phase 1 Rwy 31L/13R. The final MOA/SA (7/22/2014) .
5. The only request removed was the requested REL arrays on Runway 31L-13R and Runway 31R-13L where they intersected/crossed Runway 4L-22R. REL arrays cannot be installed on a runway-to-runway intersection for technical and safety reasons.

NTSB question: We are looking for the operational algorithm/criteria for the RWSL installation at JFK specifically. It is our understanding that a RWSL system generally becomes operational when the departing aircraft reaches 30 knots however, we did not see activation in this case until 72 knots. We would like to confirm how it is set up at JFK."

ATO Response:

Below is an updated event scenario that indicates the JFK RWSL system is operating within the standard algorithm/criteria for RWSL light activations.

Airport Ident: JFK
Time: 01:44:42z
Date: 01/14/2023
OpConfig: 4/31
Location: Runway 4L/Taxiway J
Event Type/Description: Departure vs. Converging Taxi Aircraft (Situation ID 290)
Default Parameters: Current Separation (CSEP) = 0 ft, Projection Separation (PSEP) = 0 ft, Time Horizon (THOR) = 40 sec

Event Scenario:

Taxiing aircraft, AAL106, crossed Runway 04L via Taxiway J while departing aircraft, DAL1943, occupied the runway. As a result, an aural alert of "Warning Runway Four Left Occupied" was voiced, and the corresponding alert text "RWY 4L|DAL1943, AAL106|RWY OCCUPIED" was displayed on the Air Traffic Displays. DAL1943 aborted its departure roll.

Analysis: Please note the positional accuracy of the ASDE-X is +/- 20 ft. Separation distance is between track centroids.

01:44:32z – DAL1943 initiated its departure roll on Runway 04L.
AAL106 was transitioning from Taxiway B on to Taxiway J while traveling at 11 knots.

01:44:40z – The Runway Status Lights (RWSL) Runway Entrance Lights (REL) on Taxiway J illuminated.
The RWSL utilizes its own velocity algorithm in determining light illuminations which can cause a small discrepancy when comparing to the ASDE-X velocity values.
DAL1943 was traveling at 47 knots (RWSL value), 3,708 ft from the intersection of 04L/J.
AAL106 nose was 159 ft away from the edge of Runway 04L while traveling at 10 knots (RWSL value).

Note: The Runway Status Lights (RWSL) illuminates the Runway Entrance Lights (RELs) in one of two ways for departing aircraft: 1) The aircraft must have a velocity of 29.9 knots coupled with an acceleration of 1.20 m/s*s or 2) the aircraft reaches a velocity of 49.9 knots. In this event, the RWSL processor sent the illumination command when DAL1943 reached a velocity of 34 knots and an acceleration of 1.82 m/s*s, the RWSL Field Lighting System (FLS) processed the command and illuminated the RELs when the departure was traveling at 47 knots.