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Structural Design Solutions

June 6, 2010

Jeff Rader
Board of Commissioners
DeKalb County

Dear Mr. Rader:

I have been asked by Open Dekalb, Inc. to comment on the main runway strength at PDK airport. As you are no doubt aware, the main runway was originally constructed in the early 1960's at 5,000 feet long and 11" thick. In 1987 it was lengthened by an additional 1,000 feet for a total of 6,000 feet. The extension was designed specifically to 9" thick for a MTOW of 66,000 lbs for dual wheel gear. Since the largest planes use almost the entire 6,000 feet, and they take off and land in either direction depending on the wind direction, the rated load capacity of the runway must be based on the weakest portion of the runway. Even though the 5,000 feet of original runway may have a higher load capacity, the rating for the entire runway must be limited to the 66,000 lb MTOW for the 1,000 foot extension.

Sincerely,

Marc Sorenson

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Jeff Rader
Board of Commissioners
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Dear Mr. Rader:

I have been asked by Open Dekalb, Inc. to review the runway load capacity study performed by LPA Group, Inc. and dated August 17, 1998. This report, signed by Michael Reiter, is 4 pages long with 35 pages of appendix A attachments comprising an exhaustive analysis of the fleet mix in 1998, and the number of operations. The object of this study was to determine the ability of the existing pavement structure to handle the anticipated future aircraft loadings by new larger corporate aircraft such as the Gulfstream V and the Global Express. In the first paragraph of this study, the Maximum take off weight (MTOW) of the "design aircraft" is stated to be "assumed" to be 100,000 lbs.

I have discussed this assumption with Michael Reiter, and he indicated that this assumed MTOW was not based on any physical characteristics of the pavement itself, but rather on the weight of the largest corporate jets using the airport at that time (the Gulfstream V). The report concludes that the main runway can handle up to 3,000 departures a year of the design aircraft over an FAA estimated design life of 20 years.

The LPA study does not base its runway strength analysis on engineering design, but rather on a statistical analysis of the long term durability based on repetitive operations of the largest plane actually using the runway at that time. The study notes that the original 5,000' main runway is 11" thick, but fails to consider that the 1,000 foot extension added in 1987 was specifically designed and built at 9" thick for a MTOW of 66,000 lbs.

Sincerely,

Marc Sorenson

Marc Sorenson, PE, SE