

Full Depth Reclamation [FDR] with Class 'C' Fly Ash at Waukesha County Airport / Crites Field

James R. Rosenmerkel, P.E.

Rosenmerkel Engineering / Lafarge North America, 415 Tenny Avenue,
Waukesha, WI 53186; 262-547-2585, jbrosie@outdrs.net

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ABSTRACT

The 3,500 foot auxiliary runway at Crites field was over 30 years old and needed replacement. The existing asphalt pavement was 3 inches thick, constructed over 8-9 inches of base course and poor sub soils and was badly deteriorated. It could no longer handle over 100,000 take-offs / landings per year. Full depth reclamation [FDR] was selected as the preferred construction method. Existing pavement was pulverized to a depth of 9 inches. Laboratory tests indicated that class 'C' fly ash, mixed with water and recycled, pulverized asphalt pavement at a rate of 110 lbs per square yard would yield satisfactory strength. A new 4" hot mix asphalt pavement was then constructed on the enhanced reclaimed base. One alternative was to remove the existing pavement, install geo-fabric, rebuild the base and repave. During construction, several heavy rain events occurred, resulting in enhancing the strength of the new base mixture rather than interrupting construction schedules. The additional moisture assisted with the process of hydrating the fly ash mixture. Class 'C' fly ash, a product of coal burning power plants, is readily available in many parts of the country and continues to be high quality. It reacts well with various material types much as cement does with water and aggregate to provide very firm foundations for pavement construction. On this project, the FDR construction method saved more than \$50,000 and many days of construction time. The project utilized over 2,000 tons of fly ash, eliminated the need for additional natural materials [crushed stone], nearly doubled the strength achieved by similar depths of base course and avoided rain delays that may have occurred with alternative methods. In the future, Full Depth Reclamation will be specified more commonly for general aviation airport construction based on this successful project.

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