PROJECT PROFILE

EFS Inspection of the Sacramento River Viaduct

Location:
Sacramento, CA

MFS Project PM:
Marybeth Miceli

Client Contacts:
CALTRANS

Date:
December 2007

Situation

California Department of Transportation (Caltrans) used Metal Fatigue Solution's (MFS) Electrochemical Fatigue Sensor (EFS) to inspect eleven locations along the Ramp G8 of I-50/the Sacramento River Viaduct, in West Sacramento, CA.

Type of locations tested:
- Documented fatigue cracks
- Fatigue sensitive detail
- Retrofitted details

Four of those locations had been retrofitted, six locations exhibited visible cracks, and one location had no signs of cracking. The EFS system was installed on December 12th and data were collected between the hours of 12 p.m. and 3 p.m. with all lanes open. The EFS data and analysis were used to determine whether the visible cracks were growing, the completed retrofits were successful at preventing future fatigue initiation and growth, and if there was microplasticity occurring at the location with no visibly detectable crack.

Results

Four of the six visibly detectable cracks showed that the crack was actively growing. Three of the four retrofitted locations showed no signs of plasticity in the immediate area of the retrofit. One retrofit exhibited plasticity, which indicates that fatigue crack initiation is likely in the future and should be kept under observation. The location with no visibly detectable crack showed no signs of fatigue cracking or plasticity.

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