



Location:
Steven's Point, WI

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Client Contacts:
Hoat Le
Canadian National Railway

Date:
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EFS Inspection of the Steven's Point Rail Bridge

Situation

The Canadian National Railway (CN) used Metal Fatigue Solution's Electrochemical Fatigue Sensor (EFS) System to determine the presence and activity of fatigue cracking on the Steven's Point Rail Bridge. A total of seventeen (17) locations on nine (9) connection details were investigated. All seventeen (17) locations were of the same critical detail.



A visual inspection revealed that cracks had formed around the toe of the welds at the connection detail and had either propagated into the base metal, or continued along the toe of the weld itself. The EFS data analysis was used to determine whether the visible fatigue cracks were actively growing under ambient traffic flow and if there were any imminent cracks that were likely to develop at similar detail locations.



Results

Using the EFS system, it was determined that nine locations had cracks that were actively growing, two locations showed the early signs to crack growth and six (6) locations showed no signs of cracking or imminent cracking.

NOTE: A paper on this inspection, presented at AREMA, can be found here http://www.arena.org/files/library/2009_Conference_Proceedings/Inspection_of_Fatigue_Cracks_on_a_CN_Bridge_Using_The_Electrochemical_Fatigue_Sensors.pdf

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