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Galvanic Cathodic Protection of Prestressed Concrete Bridge Girders

Objectives

To study the long-term performance of three sacrificial anodes in protecting prestressing steel against corrosion.

Background

Corrosion of prestressing steel in concrete bridge girders is a widespread and costly problem. One proposed technique for controlling corrosion is the use of galvanic cathodic protection systems, which involves spraying a metallic coating on the concrete surface. The sprayed-on material then acts as a sacrificial anode, and corrodes in preference to the steel. However, limited information is available about the long-term performance of sacrificial anodes.

Statement of Work

Three different sacrificial anodes (zinc, aluminium-zinc-indium, and zinc-magnesium) were installed on sections of prestressed girders of a highway bridge in Quebec and the girders were instrumented. Then the changes over time in the electrochemical measurements of the anodes and reinforcing steel were analysed.

Expected Outcomes

A better understanding of the performance and effectiveness of galvanic cathodic protection systems for the protection of prestressed concrete bridge girders against corrosion.

Partners

Ministère des transports du Québec

Start/Expected Completion Dates

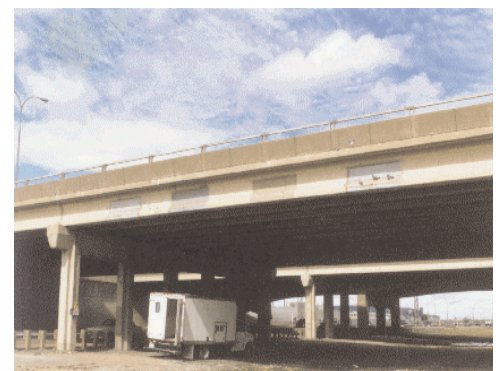
This project began in 1997 and was completed in 2005.

Project Manager

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For more information, see http://irc.nrc-cnrc.gc.ca/ui/cs/prestressed_e.html

Factsheet 43, March 2005



Three different cathodic protection systems were applied to a prestressed concrete bridge in Quebec.



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