

# Testing old cathodic protection on ohio bridge decks

[Science](#), [Chemistry](#)



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Chemistry Essay 28 April Testing Old Cathodic Protection on Ohio Bridge Decks Corrosion Problem The reinforcing steel in highway bridge decks has been undergoing corrosion. Impressed current cathodic protection is employed to mitigate the problem in bridges between the years 1985 and 1994 (Bennett et al. 31). However, insufficient data is available on the efficacy of the method in preventing corrosion. It is also not known whether the method affects the durability of the bridges.

#### Metal and Environmental Problem

The metal in question is reinforced steel. The environmental problems that cause corrosion are moisture as chemical substances released in the air by human activities.

#### The Corrosion Control Method Being Tested

The corrosion method being tested is impressed current cathodic protection (ICCP). A titanium mixed metal oxide is employed as an anode, which is applied on the upper surface of the bridge decks. Thereafter, the anode is covered with a layer of superplasticized dense material to protect from tear and wear. A rectifier causes a direct current between the reinforced steel and the anode, which causes polarization of the steel surface towards the cathode. According to NACE, all bridges that have potential decay greater than 100 mV are considered adequately protected from corrosion (Bennett et al. 34). Bridges that have ICCP applied are tested after 20 years of installation. Three of the bridges that are tested are polarized at more than 100 mV indicating that the method is effective. Areas with lower than 100 mV polarization are found to have suffered the effects of corrosion.

#### Summary

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The article evaluates the long-term efficiency of the impressed current cathodic protection method in preventing corrosion and concludes that the technique is very effective.

#### Works Cited

Bennett, Jack, Thomas Turk, Clem Firlotte, and Matt Sexton. "Testing Old Protection on Ohio Bridge Decks." *NACE International* 51. 11(2012): 31-37. Print.