

# Patch

How the  
oilpatch works

WORKS

## Cathodic Protection

April 2012



The oil and gas industry relies on the strength of steel and other metals to build pipelines, storage tanks and other infrastructure that stand up to the rigors of industry activity. However, metal has one major weakness: when it comes into contact with water or soil, it can corrode. Needless to say, corrosion in a pipeline or storage tank isn't good.

To protect pipelines and other metal structures from corrosion, the oil and gas industry uses cathodic protection (CP). The science of CP is based on electrochemistry. It's complex but in short, CP suppresses unwanted corrosion reactions by applying a protective electrical current.



The nails above show that CP works. The top nail was not protected with CP while being exposed to water; the bottom nail was. That's the kind of corrosion control pipelines need, since almost all of Canada's 700,000 kilometres of pipelines are buried underground. Pipes that are coated, then cathodically protected, are much more immune to the ravages of water and soil, and hence much safer for people and the environment.

In the WORKS...

*PatchWorks* explains how the oilpatch works in a series of short, monthly articles.

*PatchWorks* is part of PSAC's Public Outreach Program, designed to strengthen the partnership between the oil and gas industry and the communities where we operate.

- Coming up in *PatchWorks*: Pipeline Safety
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The process of CP might sound space age, but it was first used back in 1824, on the hull of a ship. (CP is still used in the ship building industry today, as well as in municipal structures like water and waste water facilities, gas distribution systems and bridges.) Since the 1930s, CP has been used extensively in the oil and gas industry to protect thousands and thousands of kilometres of pipelines in Canada. By doing so, this little-known technology has become vitally important to ensuring public safety.



Over the past decades, CP specialists have honed their ability to perform their work safely and effectively. Now the oil and gas industry is seeking to have the role of CP Technician approved as [Designated Occupation](#) in Alberta, equal in status to a Journeyman certification in a trade.

Industry photos: [Cimarron Engineering](#)

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