Some proposals on cathodic protection design of steel structure in lake

Liu Liqun[1], Sun Kai[2], Pei Longji[3]

[1,2,3]*SINOPEC PETROLEUM ENGINEERING CORPORATION,No. 49 Jinan Road, Dongying City, Shandong Province, China.*

Abstract Lake Albert is a freshwater lake on the border of Uganda that has low electrical resistivity but is home to microorganisms and dissolved oxygen. Through the analysis of two cathodic protection designs of sacrificial anode and impressed current of steel structure platform in lake water, the results show that the sacrificial anode is large in number, difficult to install and poor in economy, and the impressed current method has great advantages. However, in view of the excellent maintenance-free performance of the sacrificial anode in the early operation stage, some owners still hope to use the sacrificial anode protection mode, so the cathodic protection design of the steel structure in the lake water is analyzed and summarized from three aspects: The determination of cathodic protection current density, the design and installation of sacrificial anode skid and the installation and fixing of impressed current. That means three directions of cathodic protection design of freshwater steel structure has been pointed out.

Keywords Resistivity of lake water; Sacrificial anode skid; Impressed current cathodic protection.

Reference

[1] DNV-RP-B401 Cathodic Protection Design

[2] BS EN 12495-2000 Cathodic protection for fixed steel offshore structures