

Research on the range and degree of stray current interference of the pipeline caused by various subway lines in multiple subway interference environments

Yang yang, Hou shiyong, Lu minxu

Beijing Safetech Pipeline Co., Ltd, Room 911-2, Building 7, No.1 Penglaiyuan South Street, Future Science City South District, Changping District, Beijing

yangyang0543@126.com

Abstract The leakage of DC stray current during subway operation causes serious electrical interference and corrosion to buried pipelines. With the continuous construction of subway lines, common long-distance oil and gas pipelines in urban areas are subjected to complex, high degree, and wide range DC stray current interference due to their proximity, intersection, or parallel with multiple subway lines. This article focuses on a typical interference section of a buried natural gas pipeline that is close to and intersects with multiple subway lines, causing severe corrosion. The continuous and synchronous monitoring of the ground potential or ground potential gradient of each subway track and the ground potential of the entire pipeline is carried out. Drawing on the basic concept of "beta curve" in NACE SP0169-2013 and CP Interference, the "quasi beta curve method" is proposed to analyze and obtain the interference range and degree of stray current of the pipeline by each subway line in the interference environment of multiple subways.

Keywords Stray current interference, Multiple subway interference environments, Interference range and degree

Reference

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