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METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

9-17

May 21, 1993

To: (Engineering and Operations Committee--Information)
Board of Directors (Finance and Insurance Committee--Information)

From: General Manager

Subject: Responsibility for Costs to Monitor Metropolitan Pipelines
for Presence of Induced Currents from Outside Sources and to
Mitigate their Effects

Report

During presentation of the 1993/94 Capital Program to the joint meeting of the Engineering and Operations and Finance and Insurance committees on May 4, 1993, a number of Directors questioned why costs associated with projects included in the program to monitor Metropolitan pipelines for stray electrical current from Los Angeles County Transportation Commission's (LACTC) Blue and Green line systems should not be borne by LACTC rather than by Metropolitan.

The LACTC Blue Line system parallels or crosses seven of Metropolitan's pipelines: the Palos Verdes, Middle, Middle Cross, West Coast, and Second Lower feeders, as well as the 223rd Street and Long Beach laterals. The Green Line system parallels or crosses five of Metropolitan's pipelines: the Sepulveda, Palos Verdes, West Coast, Middle, and South Coast feeders. Both the Green and Blue Line systems are being powered by high voltage DC electrical current. These systems were designed in such a manner as to minimize the amount of electrical current that will go to ground; however, past experience with similar type systems has proven that resistance from rail to ground decreases as the system ages.

The test stations, included in the Capital Program, will allow for accurate and frequent monitoring which is essential given the consequences large magnitudes of DC current discharge have on corrosion rates of steel over a relatively short period of time. If problems are detected, these test stations will have the negative lead of a cathodic protection system in place. Cathodic protection systems, which would mitigate the effects of current discharge, could be installed in relatively short time periods without having to delay for excavation of the pipeline.

In 1967, the National Association of Corrosion Engineers (NACE) formed nationwide ad hoc committees to formulate guidelines in an attempt to equitably deal with the problem of cost allocation. Guidelines adopted by the Western Region of NACE, although not legally binding, have been generally recognized and used by utilities in the Southern California area. These guidelines provide that:

1. If the source of the interference was installed prior to the facility being interfered with, then:

a. The owner of the interfered-with facility should provide and pay for installation of one or more bonding cables from its facility to mutually agreed upon locations on the interfering structure.

b. The owner of the interfering system should accept the return current back to its system without charge.

c. All other costs should be assumed by the owner of the facility being interfered with.

2. If the facility experiencing interference was installed prior to the source of interference, then:

a. The owner of the interfering system should provide and pay for installation of one or more bond boxes, ammeters or shunts, and bond cables from its system to mutually agreed upon locations on the facility experiencing the interference.

b. The owner of the interfering system should accept the return current back to its system without charge.

c. All other costs should be assumed by the owner of the interfering system.

Prior to construction of the LACTC Rapid Transit System, a series of meetings were held between LACTC and other agencies operating substructures in and near the rights-of-way of the system. The meeting resulted in the institution of a "no bonding" policy on the LACTC system because the total number of bonds required would have seriously compromised the efficiency of the system and made it extremely difficult to manage.

The guidelines developed by NACE for mitigating impacts of "foreign systems" on others are widely accepted by both public and private utilities and have generally worked well. As indicated above, they permit flexibility for unique situations, such as the LACTC Rapid Transit System, by providing a forum for parties to discuss and mutually resolve problems short of litigation.

Board Committee Assignments

This letter is referred for information to:

The Engineering and Operations Committee because of its authority to study, advise, and make recommendations with regard to the performance of construction programs and work, pursuant to Administrative Code Section 2431(b); and

The Finance and Insurance Committee because of its authority to study, advise, and make recommendations with regard to authorization of appropriations pursuant to Administrative Code Section 2441(d).

Recommendation

For information only.


for General Manager

LAG/LLT:atr
(brd:lactc-05173)