ABSTRACT

The underground transmission lines (UTL) with direct buried cables have been used widely in several parts of the world since 1923. The self-contained oil filled (SCOF) cables have been used in these installation modes and the most of them still continues work. Nevertheless the needs of cable current increasing; the backfill replacement by advanced mix of stabilized materials can be considered instead of the cables replacement which were done in the near past. This word presents the development of a technology concerning the recovery of ampacity of transmission line with cable up rating by simply backfill replacement by new class of thermal stabilized backfill.

KEYWORDS

Cables, Underground, Ampacity, Backfill, Crushed Stones

INTRODUCTION

The origin of this work began in the extremely operational conditions of LT102 and LT148 of LIGHT SESB in Rio de Janeiro City long 4.7 km which are part of feeder ring of international airport as one can see in the figure 1.

Many solutions were studied to overcome the problem including changing the cables, but the most economical solution elected were backfill replacement [1] only in the critical zone as shown in figure 3.

BACKFILL MATERIAL

The material should be a new class of stabilized backfill [2] called BI MODAL by resulting a blend of two size of crushed stones as one can see in the figure 4 forward.

This brings an ultimate solution as natural material for recovering cables ampacity.