DETERMINING THE ENERGY INVOLVED IN THE INSTALLATION OF PEHD PIPES. APPLICATIONS OF DETERMINING THE ECONOMIC DIAMETER OF PRESSURE PIPES IN IRRIGATION SYSTEMS

Ilie LOGIGAN[1], Esmeralda CHIORESCU[2], Feodor FILIPOV[2]

e-mail: esmeralda.chiorescu@iuls.ro

Abstract

The main purpose of the paper is the economic evaluation of the construction of pipeline networks under pressure, within irrigation systems. In this sense, the following stages were completed: (1) the technology for the execution of the pipeline network was established; (2) the phases related to the execution technology were established, respectively, grouped by categories of work, are as follows; (3) category of earthworks: mechanized excavation when making a trench related to the pipeline network; manual excavation when making a trench related to the pipeline network; mechanized filling when making the pipe network; (4) manual filling when making the pipeline network; mechanized compaction when making the pipe network; manual compaction when making the pipe network; making (manual filling) the sand bed; the mechanized spreading of the surplus earth resulting from the excavation; (5) category of construction and assembly works: preparation for joining pipes (tubes); joining by welding the pipeline (tubes); laying of pipes (tubes); (6) corresponding to the technological phases of the construction of the pipeline network, estimate items were allocated using WindevRO version 7.3 quotation preparation software, with the price catalog related to the semester preceding the preparation of this paper; (7) going through the above stages, the price per linear meter of pipeline executed in the field, equipped with PEHD, PE 100, PN 10 pipes and the range of diameters DN 90...DN630, was evaluated. By using these prices a mathematical model was established and the accuracy of determining the economic diameter for pressure pipe networks within irrigation systems has been improved.

Key words: execution technology, economic diameter, pipeline network