

A B S T R A C T

OPTIMIZATION OF FLOW NETWORKS FOR OIL PRODUCTION

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The main purpose of this study is to critically examine oil production systems, with particular reference to that of Trinidad-Tesoro Petroleum Company Limited and to propose procedures for the modelling, solution and implementation of systems for optimization of flow networks for oil production. The author is presently employed with the above-mentioned Company and during his initial training, the subject of the study was identified for closer examination.

In view of the constantly increasing costs of materials, labour and intangibles, it has become necessary to creatively improve the costs of production. This is not simply an exercise of cutting costs but one of scientifically locating and allocating resources to achieve maximum profitability. The conservation and proper utilization of the components of the production process are integral to this exercise. With inflationary trends as they are at present, the task is enormous, but it can be overcome with proper manipulation of the controllable variables of production.

In consideration of the above, the author has formulated procedures for attaining the objectives of the study, which if implemented, should result in additional financial returns to the Company.

The main thrust of the thesis is the application of the principles of Operations Research. Original work in the study encompasses new procedures of modelling systems using an heuristic approach. In this regard, it is the intention of the author to advance the study of Operations Research by developing strategies to simplify the formulation of models for complex network problems.