OPTIMIZATION COST OF DESIGNING A TANK USING NONLINEAR PROGRAMMING MODEL

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DECLARATION BY CANDIDATE

I certify this report and the project to which it refers is the product of my own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with standard referring practices of the discipline.

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ABSTRACT

Tank is a widely used component in our daily life to store anything such as water, oil, gases and others. Tank is used to provide a convenience and easy life for everyone. The purpose of this study is to determine the best material between three materials which are concrete, stainless steel and polyethylene to design a tank with the lowest cost spend in designing these tanks. This study used the nonlinear programming model to determine the optimum size with the lowest cost spend for the tank. Two mathematical softwares were used which are Microsoft Excel Solver and Maple 18 in calculating and solving the problems. Microsoft Excel Solver use GRG Nonlinear method while Maple 18 use Sequential Quadratic Programming method. The result from this study showed that tank made by polyethylene is found to have the lowest cost spend. This study also concluded that Maple 18 gives better solution and suggestion of sizes of tanks as the method used which is Sequential Quadratic Programming method is globally optimized.

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