ABSTRACT

NITROGLYCERIN FACTORY PREDESIGN FROM GLYCEROL AND NITRIC ACID WITH CAPACITY OF 10,000 TONS/YEAR (Design of Neutralizer (NE-301))

By

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Nitroglycerin is a chemical substance commonly used as a base material for double base and triple base propelan. A mixture of nitroglycerin and nitrocellulose is a material commonly used in the explosives industry. Nitroglycerin can be produced from the nitration process of glycerol with an acid mixture consisting of nitric acid and sulfuric acid. Domestic supply of nitroglycerin is still fully obtained from imports, so the opportunity to establish a nitroglycerin factory has good prospects. Provision of plant utilities in the form of water treatment and supply systems, refrigeration systems, as well as air suply and instrumentation. The production capacity of the nitroglycerin plant is planned to be 10.000 tons/year with 330 working days in 1 year. The factory location is planned to be established in Tangerang, Banten. The required labor are 123 people with a bussines entity form Limited Liability Company (PT) with a line organizational structure.

From the economic analysis are obtained:

Fixed Capital Investment	(FCI)	= IDR 192.261.143.216
Working Capital Investment	(WCI)	= IDR 33.928.437.038
Total Capital Investment	(TCI)	= IDR 226.189.580.255
Total Production Cost	(TPC)	= IDR 198.021.662.595
Break Even Point	(BEP)	= 31,55%
Shut Down Point	(SDP)	= 15,27%
Pay Out Time before taxes	$(POT)_b$	= 1,56 years
Pay Out Time after taxes	$(POT)_a$	= 1,87 years
Return on Investment before taxes	$(ROI)_b$	= 46,03%
Return on Investment after taxes	$(ROI)_a$	= 36,83%
Discounted cash flow	(DCF)	= 37,91%

Based on the results of the analysis above, then establishment of a nitroglycerin factory is worthy of further study, because it is a profitable factory from an economic standpoint and has relatively good prospects.