



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



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REVAMPING OF A PREHEAT TRAIN OF CRUDE ATMOSPHERIC UNIT UNDER TWO OPERATIONAL MODES OF NAPHTHA STABILIZING

By

AMANY GAMAL BADWEY ABO-MOUSA

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
in
CHEMICAL ENGINEERING

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Title of Thesis:

Revamping of a preheat train of crude atmospheric unit under two operational modes of naphtha stabilizing.

Key Words:

Energy integration, Naphtha stabilizer, Pinch analysis, Heat exchanger network, Revamping.

Summary:

The current research applies the recent graphical revamping methodology on an existing crude atmospheric distillation unit. The unit is located in north of Egypt (Suez region) and is operated under two different operational modes; (1) with naphtha stabilizer when LPG is separated from naphtha stream, and (2) without naphtha stabilizer when the process reformer is under run to reform all naphtha streams without stabilization. The unit processes 5,000 ton-per-day of crude oil coming from the Gulf of Suez. The current energy consumption is estimated to be 28.24 MW. Revamping of such plants is challenging and requires solution flexibilities. In this study, a simulation model and validation are initiated for heat exchanger network of two operational modes, using ASPEN ENERGY ANALYZER software, for energy analysis and optimization.

Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.

I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

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