## Investigations of the Crude Oil Distillation Preheat Section in Unit 100 of Abadan Refinery and Its Recommendation

Authors : Mahdi GoharRokhi, Mohammad H. Ruhipour, Mohammad R. ZamaniZadeh, Mohsen Maleki, Yusef Shamsayi, Mahdi FarhaniNejad, Farzad FarrokhZadeh

**Abstract :** Possessing massive resources of natural gas and petroleum, Iran has a special place among all other oil producing countries, according to international institutions of energy. In order to use these resources, development and functioning optimization of refineries and industrial units is mandatory. Heat exchanger is one of the most important and strategic equipment which its key role in the process of production is clear to everyone. For instance, if the temperature of a processing fluid is not set as needed by heat exchangers, the specifications of desired product can change profoundly. Crude oil enters a network of heat exchangers in atmospheric distillation section before getting into the distillation tower; in this case, well-functioning of heat exchangers can significantly affect the operation of distillation tower. In this paper, different scenarios for pre-heating of oil are studied using oil and gas simulation software, and the results are discussed. As we reviewed various scenarios, adding a heat exchanger to pre-heating network is proposed as the most efficient factor in improving all governing parameters of the tower i.e. temperature, pressure, and reflux rate. This exchanger is embedded in crude oil's path. Crude oil enters the exchanger after E-101 and exchanges heat with discharging kerosene pump around from E-136. As depicted in the results, it will efficiently assist the improvement of process operation and side expenses.

Keywords : atmospheric distillation unit, heat exchanger, preheat, simulation

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