

**EFFECT OF PIPE ROUTING ON TURBINE FLOW METER READINGS AND
SUBSEQUENT DISCREPANCIES IN CONDENSATE LOADING AT BANGORA GAS
FIELD**

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ABSTRACT

In this Q1 of 2012 there are eighty one producing wells of natural gas in Bangladesh among which four belong to the Bangora Gas Field located at Muradnagar, Comilla. The production rate from this field rounds about 105 MMscfd of natural gas along with 330 bbl condensate per day. On an average five to six tankers are loaded everyday at Bangora Central Processing Facility for exporting the produced condensate. This loading purpose is served with two centrifugal pumps (P-640A and P-640B) which are supposed to be used alternately. Although the pumps are of the same model, P-640B loads each tanker with about 148 Liter of extra condensate according to the level change of the storage tanks (S-710 and S-715). Besides, loading from S-715 causes somewhat overloading. Finding out the core cause(s) of this event of overloading and then making out the most feasible solution(s) were the main objectives of this study. Based upon physical observation and mathematical analysis, the additional loads induced by the bends and the extra length of pipe present in the flow path regarding P-640B and S-715 have been found responsible for the concerned inconsistency. According to the theory of pump characteristics, it has been shown that the operating point of P-640B has been shifted from the desired zone due to those extra loads resulting in a flow rate lower than that delivered by P-640A. Then the relation between these lower flow rates and erroneous readings given by the flow meter has been revealed utilizing the working mechanism of the pertinent turbine flow meter. Finally some plausible ways out have been suggested and upon taking initiatives accordingly the company has already been able to enhance its export rate of condensate by 13320 Liter per month (about 0.86% of monthly export) even after maintaining the same production rate as before.

KEYWORDS: Bangora Gas Field, Centrifugal Pump, Condensate Loading, Frictional Energy Losses, Pipe Routing, Turbine Flow Meter