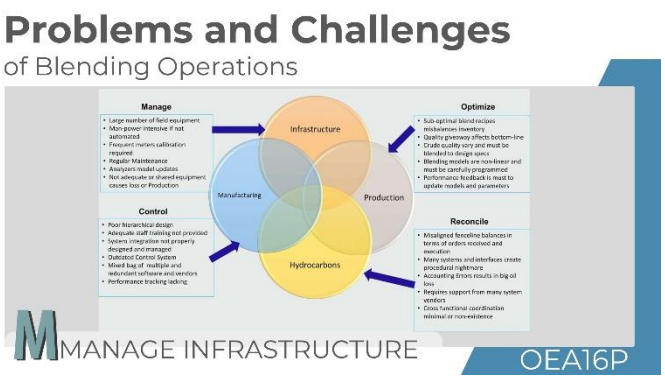

Topic ID	**OEA16T**
Title	**Problems and Challenges of Blending Operations**
Category	**M-Manage Infrastructure**
eLearning Level	**Basic**

Introduction

Today's global refining market is becoming more competitive with time. Therefore, refiners must increase their operational efficiencies to meet demand, not only by producing refined products but also by maximizing their productivity and lowering the costs of their products.

The prime objective of this topic is to outline blending problems and challenges that should be considered during the blending process to increase its efficiency.

Blending Problems and Challenges

The first group of problems falls under the category of physical constraint. Physical constraints include inadequate or unavailability of dedicated storage tanks for the products, which affect the blend quality; unavailability or limited functionality of an automatic tank gauge (ATG)

Additionally, insufficient availability of pumps and discrete online analyzers for measuring tanks qualities at the exits; manually operated valves and pumps taking longer to run; unavailability of a blend header; and delays concerning lab analysis. All of these could affect overall productivity.

Another group of constraints is called operational constraints. They encompass unidentified real-time tank inventory, risk of cavitation within the pumps, unknown real-time final tank quality, infrequent calibration of measuring instruments, the decision to conduct batch-wise or random blending, sophisticated planning, and extreme recirculation final product.

Moreover, an insufficient amount of trained human resources is also a problem to consider. It could mean the unavailability of an experienced blend engineer, lack of blending skills and education among blend engineers, or lack of participation in formal blending training or transferring knowledge to other blend engineers.

Sometimes management prioritizes its plans and gives more importance to onsite services instead of blending, which is an offsite operation.

The oil trade environment is also affected by inflexible government laws, the quality/cost of crude oil, and the invention of fuel-efficient vehicles.

Old analyzers may take a long time to conduct analysis. Dedicated analyzers may be needed as per the requirement of some very specific properties.

The in-line blending unit may have to conduct in-line certification. It is different from in-line delivery. These two procedures both have audit programs and are independent.

It is not easy to model the blending process because it is a nonlinear process. It is not easy to have in-line control of octane. A generic blending model is not of much help. Moreover, plant management ignores financial incentives that are offered by an efficient blending operation.

Summary

For refiners, there are many challenges like dead inventory, shipping demurrage, tankage, etc. This literature has highlighted a few significant problems and challenges regarding the blending operation: physical constraints, operational constraints, human resource constraints, trade environment constraints, and management constraints.

Mode of eLearning	Available?
Free Course	No
Refresher Course	No
Pick N Choose (Custom Curriculum)	Yes
Advanced Level Course	Yes
Structured MCOR Curriculum	Yes