Topic ID	**OEA58T**
Title	**Pumps, MOVs, and Control Valves**
Category	**M-Manage Infrastructure**
eLearning Level	**Basic**

Introduction

Pumps and valves are used to maintain refinery processes continuously without sacrificing blend accuracy or quality. In fact, 10% to 15% of the capital investment in a refinery is for pumps and valves. Using an incorrect pumps and valves layout may result in financial loss due to wastage and equipment damage. An incorrect layout may also have an adverse outcome for the safety and environmental concerns of a refinery. Therefore, a refiner should prepare an efficient and cost-effective valve layout and instrumentation for a better blending system.

This topic will discuss typical blenders, required automation of field equipment, review of location, purpose, role in automation, and management information of all field equipment; lineup equipment; instrumentation; manual valves; motor-operated valves; pumps; pressure controllers; flowmeters; flow controllers; etc.

Pumps, MOVs, and Control Valves in a Refinery

Important features of an automatic tank gauging system include pressurized monitoring piping and interstitial spaces in tanks.

The appropriate valve has to be chosen for each task. In addition, the valve must be constructed to fit the need for a specific application and process layout.

Combining various instruments (obtained from different manufacturers) with proven technologies to solve various specific application challenges concerning blending.

Choosing and appropriately locating manual valves can help eliminate microbial growth, which reduces the possibility of corrosion and fuel contamination.

A refiner can assess the suitability of valves and improve a refinery's performance by implementing advanced control.

The advanced control will help pinpoint control valve deficiencies, tune instrumental control loops, and study overall process dynamics. These tasks are carried out with the use of pressure and flow controllers. In addition, a flow-based blending system may be improved by relying on the accuracy and versatility of Coriolis flowmeters.

Valve stickiness and packing leakage may be avoided by choosing appropriate pumps used in the oil and gas industry with specifications referred to in ANSI: 1610/1634 and NACE.

A process drawing may be produced showing pumps and valves, their location within the processing system, and the process flow direction To help choose appropriate pumps. In addition, initial familiarization with possible valve/pump problems and troubles with automated control is useful to create a better and more flexible process layout.

Summary

Pumps and valves are fundamental in a refinery blending system to produce fuel complying with industry standards and specifications. Today, process control systems have overcome the limitations of typical pneumatic equipment for centralized control. Therefore, refiners must study the suitability of valves and pumps, specifically in the context of desired levels of an online and automated blend control. Here, compatibility to the entire blending system should also be considered.

Options for eLearning This Topic

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