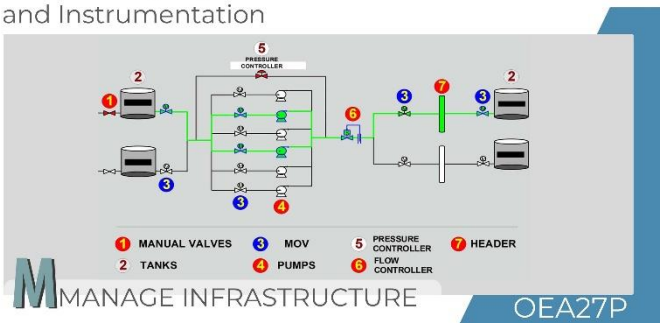
Field Equipment
and Instrumentation



Topic ID	**OEA27T**
Title	**Field Equipment and Instrumentation**
Category	**M-Manage Infrastructure**
eLearning Level	**Basic**

Introduction

For the proper function of a refinery, along with appropriate equipment, adequate instrumentation is also required. Proper instrumentation increases the quality of work, prevents damage, and provides sufficient control over the equipment.

This topic will discuss topics like a typical blender, lineup equipment, the analyzer and sampling system, instrumentation, additive controls, and computer systems. In addition, these topics will overview the field equipment, advancement in control systems used in the plants, and processing of the particular data using computer systems.

Typical Blender

A typical blender consists of a tank farm, automatic tank gauging system, laboratory, field equipment/instrumentation, additive control system, online analyzers and sampling system, blender skid, distributed control system (DCS), advanced control system, and end product dispatch.

Lineup Equipment

Lineup equipment typically consists of manual valves, tanks, a motor-operated valve (MOV), pumps, a pressure controller, a flow controller, and a header. Lineup equipment plays a significant role in the maintenance of the refinery. Manual valves, such as hand wheels and hand levers, are operated manually and used primarily to start and stop the flow. The motor-operated valve (MOV) is typically used for flow control in the plant. It is generally large in size.

Analyzers and Sampling Systems

Analyzers and sampling systems are used to accurately determine product quality. Collected samples in the manual sampling system have to be analyzed in the laboratory. Insert type sampling systems are the best choice to do maintenance in between shifts. They can be implemented within the metering control system. Fast-loop sampling is often used when measurement systems are in continuous working conditions. Analyzers and sampling systems combine with advanced blend control. Using optimization processes will give the qualitative results of the product.

New analyzer technologies have evolved to perform the measurement and detection of properties. The response obtained from the sensors is based on fundamental physical and chemical principles. With the evolution of new process analytics, the gap between the instruments and analyzers is becoming smaller.

Summary

The typical blending control system includes instrumentation, a computer system, instrumentation, analyzers, and a sampling system. For proper implementation of the blending control system,

We need to maintain appropriate communication between this equipment. Technological advancements in computer systems, controllers, and analyzers helped the industries maintain safety, become more productive, and stay reliable.

Still, more research is going on for further development of equipment.

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