

EIPC (NEE-403)

Unit-4

Process Control

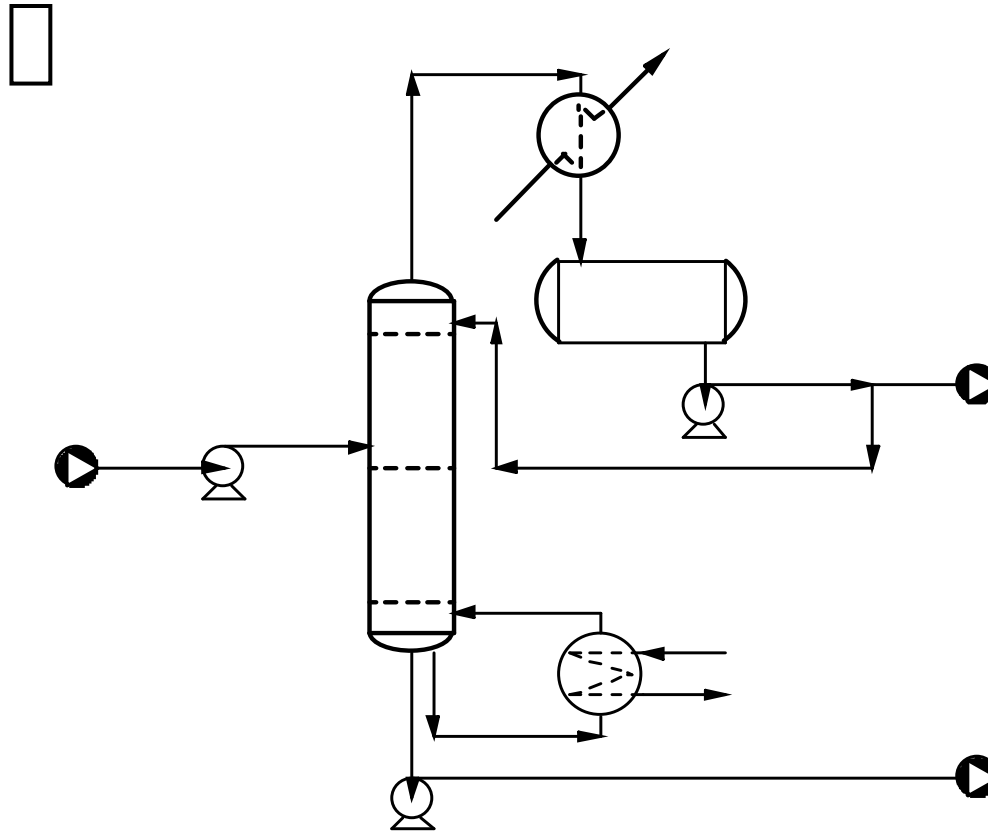
Examples of Control Valve Installations ~



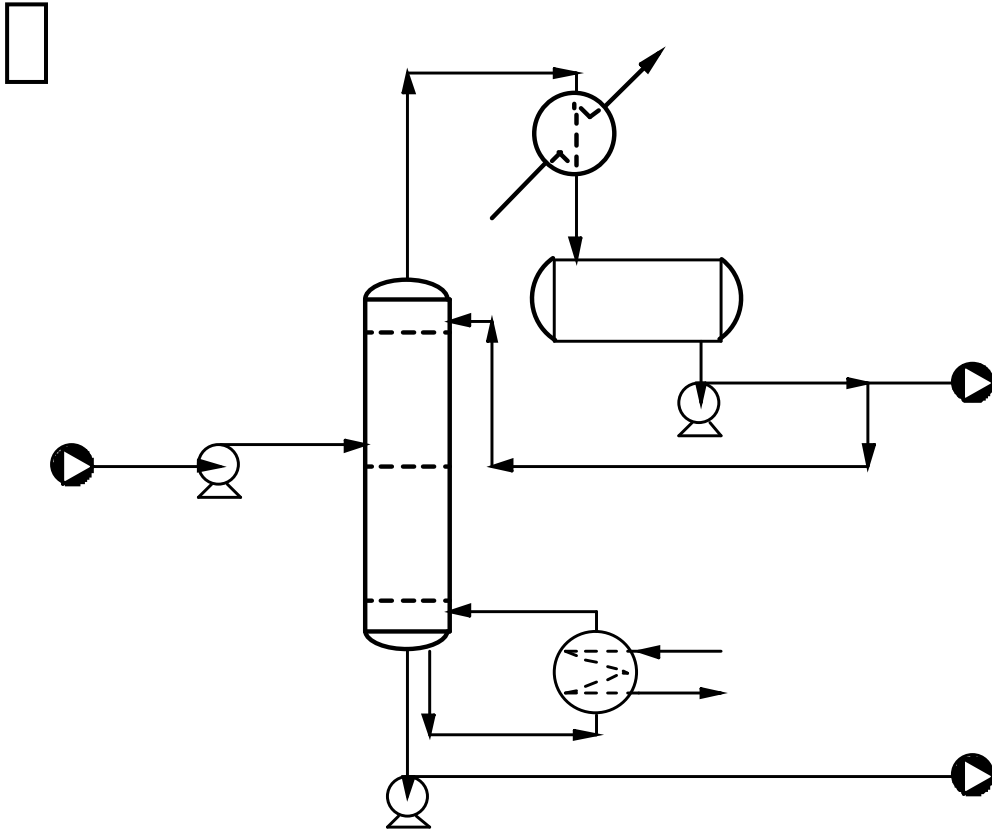
Example of Valve Installations ~



A typical distillation tower schematic~

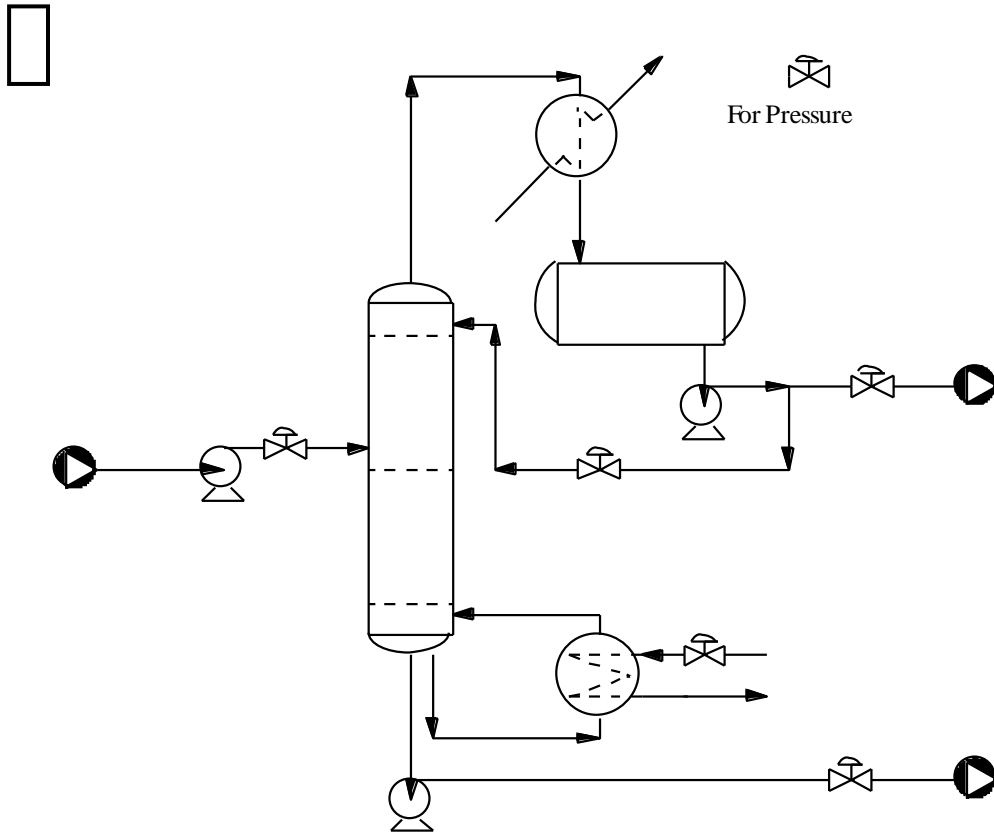


Distillation is used to effect a composition change and, typically, recover a certain percentage of a component(s). This requires stable operation.



Identify possible upsets to which the control system must respond.

Estimate the number of control valves required to respond to these possible upsets.



The flowsheet at left shows the independent streams that need a control valve. The streams are 'manipulated' variables. The flows will be manipulated to control some variable.

What do we measure?

Guidelines for selecting Controlled Variables

- Select Variables which aren't self-regulating
- Select Variables that may exceed equipment and operating constraints
- Select Variables that are a direct measure of product quality or that strongly affect it
- Select Variables that seriously interact with other controlled variables
- Select Variables that have favorable dynamic and static characteristics

Guidelines for selecting Manipulated Variables

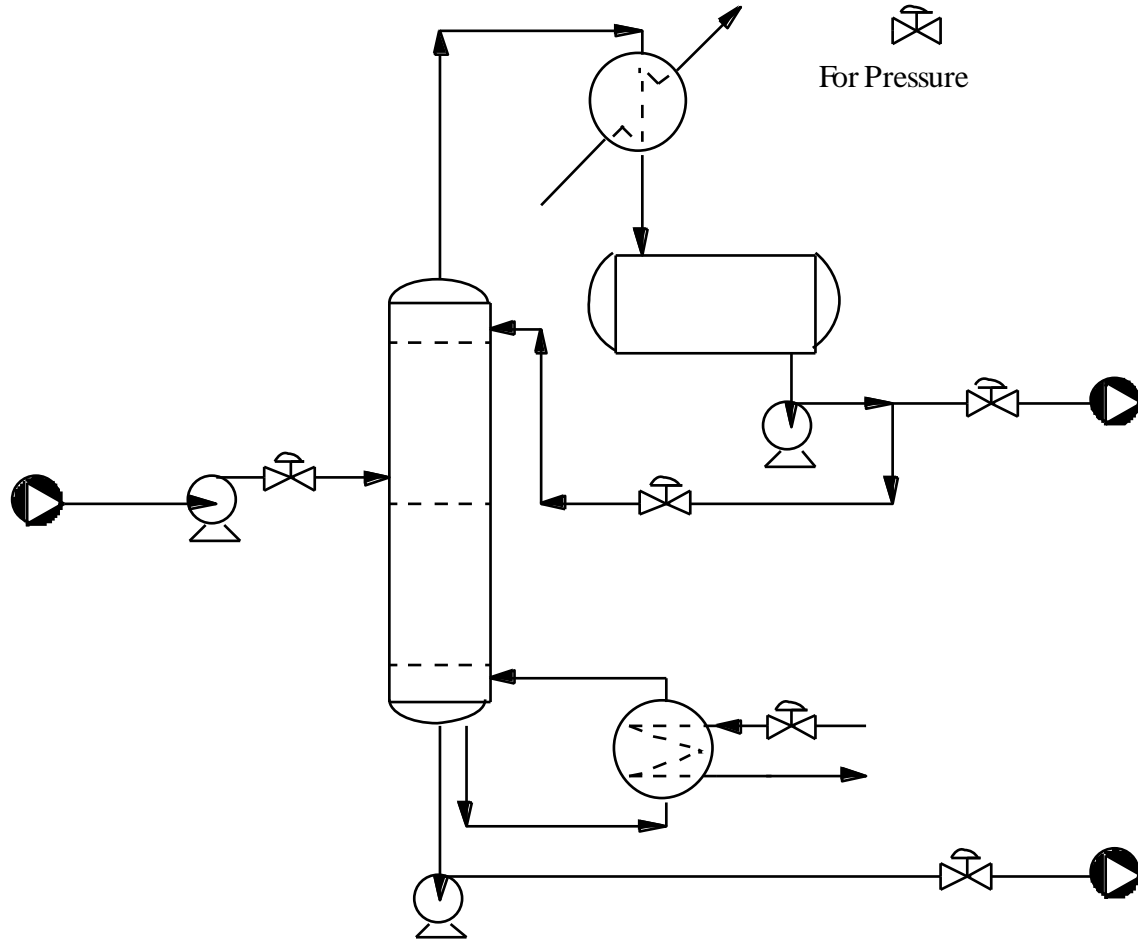
- Select Variables that have large effects on the controlled variables
- Select Variables that rapidly affect the controlled variables
- Select Variables that have a direct affect on the controlled variable
- Select Variables that avoid recycling or propagating disturbances

Guidelines— for Measured Variables

- Select Variables where measurements are reliable and accurate
- Select Variable measurement points with adequate sensitivity
- Select Variable measurement points that minimize time delays/constants

BPCS Guidelines

Now consider our distillation tower~



Thank You