EnVision
e-Learning & Universal Simulation

Atm and Vac Crude Distillation

A self-paced MultiMedia based Tutorial/CBT and real-time dynamic simulation of an Atmospheric and High Vacuum Crude Distillation Unit.

Tutorial/CBT:

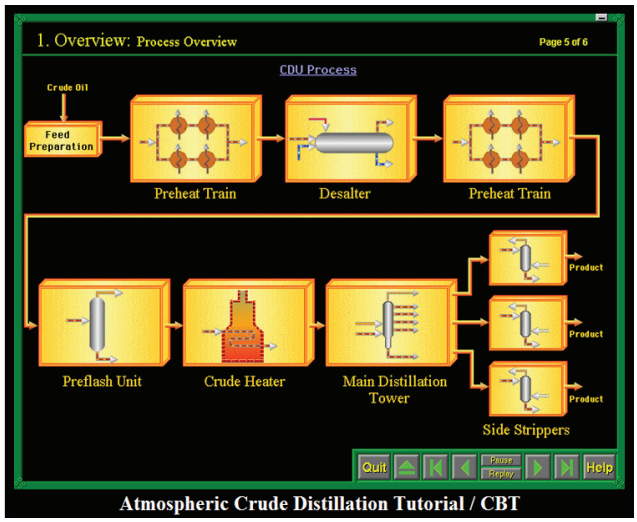
This interactive tutorial provides an Overview, Fundamental Principles, and Control and Operating Principles for an Atmospheric Crude Distillation Unit using Voice, Video, Animation and Graphics.

Overview
- Introduction
- Crude Oil
- Process Overview
- Downstream Refinery Units

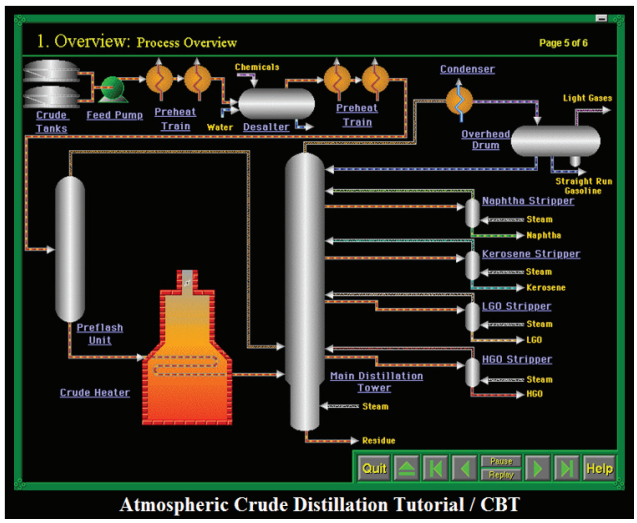
CDU Process Components
- Crude Preparation
- Desalter
- Preheat Train
- Preflash Unit
- Crude Heater
- Distillation System

Operating Examples
- Change in Crude Characteristics
- Increase Kerosene Production Rate
- Decrease IBP of LGO

Key Performance and Operating Variables
- Introduction
- Product Specification
- Desalter
- Crude Heater Outlet Temperature
- Tower Pressures
- Tower Temperatures
- Pumparound Rates
- Overflash Flow
- Product Rates
- Main Tower Stripping Steam Rate
- Side Stripper Stripping Steam Rates



Atmospheric Crude Distillation Tutorial / CBT



Atmospheric Crude Distillation Tutorial / CBT

- Tutorial has a built-in Quiz and comes with a Learning Management System (LMS) called TutAdmin. The LMS allows an instructor to register trainees and monitor their performance and Quiz scores
- Tutorial is available as a Standalone or Web based application
- Available in English, Chinese, Danish, Dutch, French, German, Spanish and Swedish

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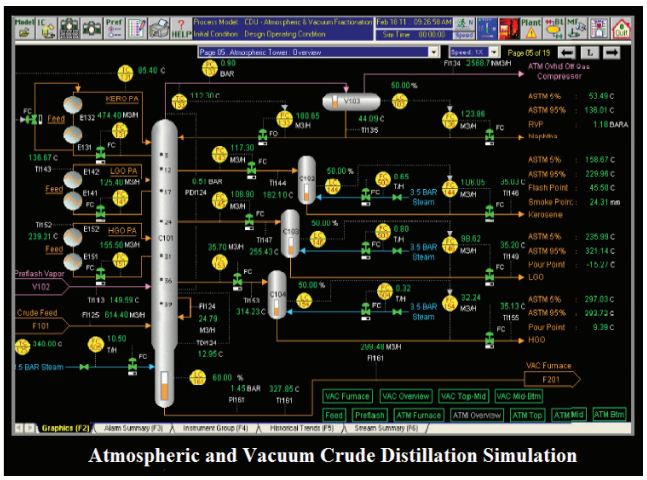
Simulation

GSE's EnVision simulation is a real-time dynamic process simulation program used for Operator Training. It is based upon a rigorous and High-Fidelity mathematical process model to provide a realistic dynamic response of a process unit.

The Simulator allows a Trainee to Practice:

- Startup and Shutdown Operations
- Normal Operations
- Emergency Shutdown Operation
- Control Exercises
- Troubleshoot and practice recovery from Equipment, Instrument, and Control Valve Malfunctions



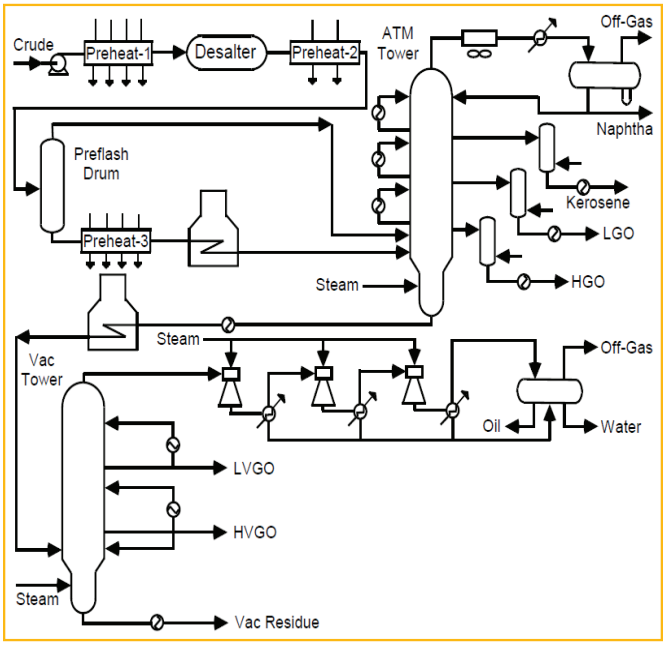
Atmospheric and Vacuum Crude Distillation Simulation

Major Equipment:

- Crude Desalter
- Pre-flash Drum
- Crude Heater
- Atm. Tower
- Atm. Tower Overhead
- Kerosene Stripper
- LGO Stripper
- HGO Stripper
- Vacuum Furnace
- Vacuum Tower
- Vacuum Overhead

Key Operating Variables:

• Feed:	676	M3/H	(2450 BPH)
• Naphtha:	124	M3/H	(450 BPH)
• Kerosene:	106	M3/H	(384 BPH)
• LGO:	98	M3/H	(355 BPH)
• HGO:	32	M3/H	(116 BPH)
• LVGO:	47	M3/H	(170 BPH)
• HVGO:	124	M3/H	(450 BPH)
• Residue:	126	M3/H	(456 BPH)
• Crude Heater Out Temp.:	340	C	(644 F)
• Atm. Tower Pressure:	0.9	BAR	(13.1 PSIG)
• Vac. Furnace Out Temp.:	421	C	(790 F)
• Vac. Tower Pressure:	-0.92	BAR	(-13.3 PSIG)



- Simulation comes with a Learning Management System (LMS) called SimAdmin that allows an instructor to register trainees and monitor their performance
- Simulation is available as Standalone (Single or Dual Monitor) and Instructor-Trainee versions

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