EnVision
e-Learning & Universal Simulation

Gas Oil Separation Process

A self-paced MultiMedia based Tutorial/CBT and real-time dynamic simulation of a Gas Oil Separation Process.

Tutorial/CBT:

This interactive tutorial provides an Overview, Fundamental Principles, and Control and Operating Principles for a Gas Oil Separation Process using Voice, Video, Animation and Graphics.

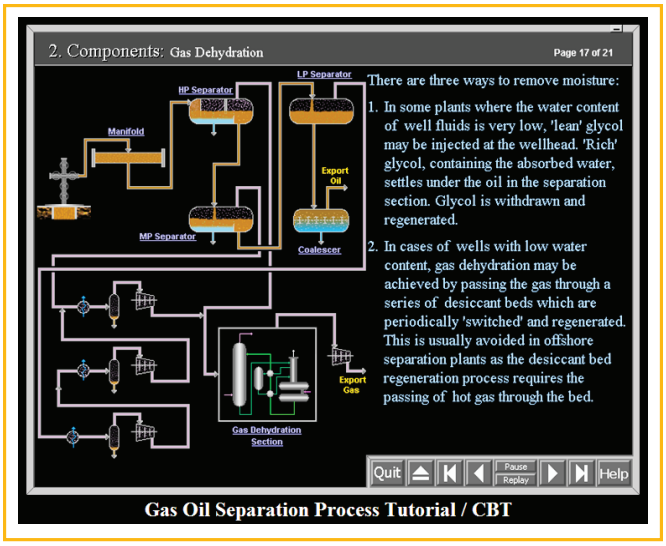
Overview
- Introduction
- Importance of Gas Oil Separation
- Process Overview

Components
- Wellheads and Manifold Gathering
- Separation
- Produced Water
- Oil Export
- Gas Compression
- Gas Sweetening
- Gas Dehydration

Principles
- Extent of Separation
- Compression
- Gas Sweetening
- Gas Dehydration

Key Controlled and Operating Variables
- Reservoir Composition
- Well Feed Rate
- Stage Temperature
- Separator Interface Level
- Separator Pressure
- Compressor Temperature and Pressure
- Amine Concentration
- Amine Solution Circulation Rate
- Glycol Contactor Temperature and Pressure
- Glycol Circulation rate
- Glycol Concentration

Startup
- Introduction
- Purging and Preparation
- Start Circulation in Gas Treating Systems
- Start Production Well
- Start Oil Processing and Produced Water Systems
- Start Gas Compression Systems
- Start Gas Sweetening and Gas Dehydration



Gas Oil Separation Process Tutorial / CBT

- Start Gas Export and Re-injection

Shutdown
- Introduction
- Stop Well and Export Flows
- Stop Compression and Gas Treating Systems
- De-inventory and Depressurize

Safety Systems
- Overview
- Shutdown Hierarchy
- Detectors and Voting System

Troubleshooting
- Hydrate Formation
- Foaming
- Corrosion
- Compressor Fouling
- Poor Amine Absorber Performance
- Glycol System Problems

- 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

EnVision

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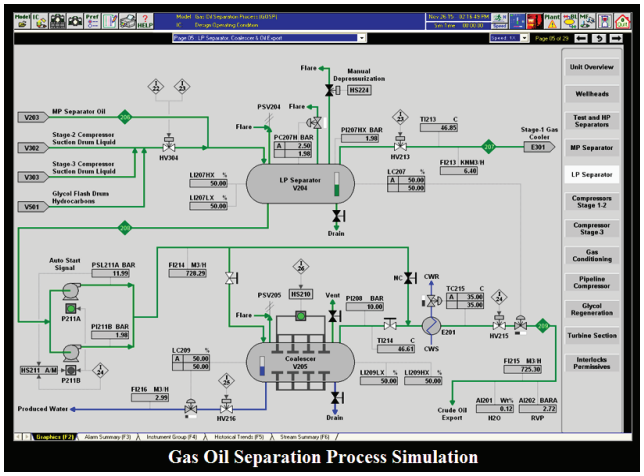
Simulation

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



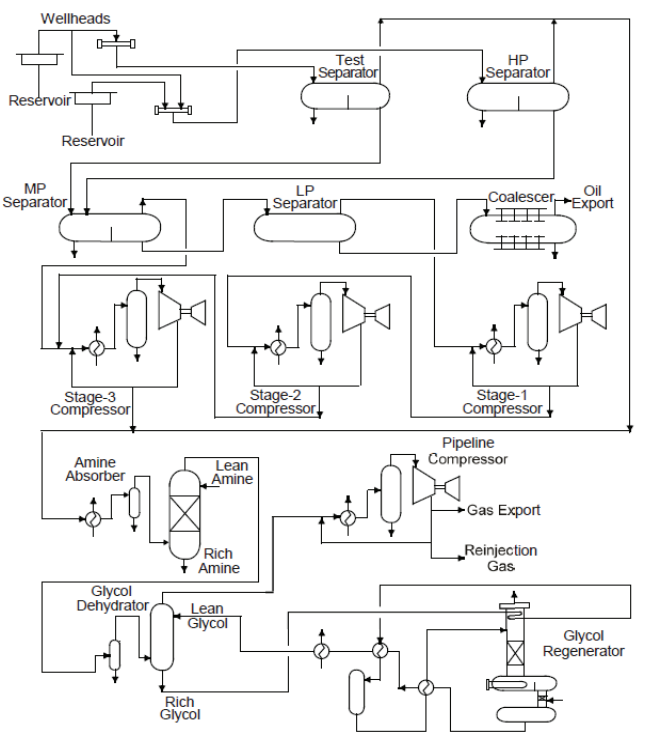
Gas Oil Separation Process Simulation

Major Equipment:

- Wellheads and Manifolds
- Test, HP, MP and LP Separators
- Electrostatic Coalescer
- Gas Compression (Three Stages)
- Pipeline Compressor
- Amine Absorber
- Glycol Dehydrator
- Glycol Regenerator

Key Operating Variables:

• HP Separator Pressure:	70.0 BAR	(1015.0 PSIG)
• MP Separator Pressure:	20.0 BAR	(290.0 PSIG)
• LP Separator Pressure:	2.0 BAR	(29.0 PSIG)
• Crude Oil Export Flow:	725.0 M3/H	(110.0 MBPD)
• Crude Oil Water Content:	0.12 Wt%	
• Crude Oil RVP:	2.70 BARA	(39.6 PSIA)
• Amine Absorber Sour Gas Flow:	70.0 KNM3/H	(2472.0 MSCFH)
• Amine Absorber Lean Amine Flow (DEA):	120.0 M3/H	(530.0 GPM)
• Amine Absorber Outlet Gas H2S:	13.0 PPM	
• Amine Absorber Outlet Gas CO2:	0.80 Mol %	
• Glycol Dehydrator Gas Flow:	67.0 KNM3/H	(2370.0 MSCFH)
• Glycol Dehydrator Lean Glycol Flow:	3.0 M3/H	(13.5 GPM)
• EXport Gas Flow:	57.0 KNM3/H	(2002.0 MSCFH)



- 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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