EnVision
e-Learning & Universal Simulation

NGL Unit (Gas Plant)

A self-paced MultiMedia based Tutorial/CBT and real-time dynamic simulation of an NGL Unit (Gas Plant).

Tutorial/CBT:

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

Overview
- Introduction
- Importance of NGL Recovery

Process Description
- Inlet Conditioning
- Feed Chilling and Separation
- Expansion Refrigeration
- Fractionation
- Refrigeration Recovery and Compression

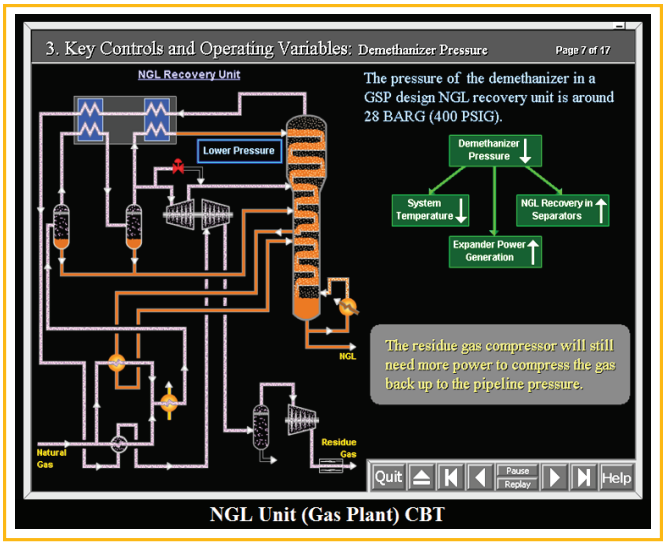
Key Controls and Operating Variables
- Feed Gas Flow Split
- Cold Separator Pressure & Temperature
- Flow to the Sub-cooler
- Demethanizer Pressure
- Demethanizer Bottoms Temperature
- Ethane Disposition
- Compressor Controls

Principles
- Expander and J-T valve

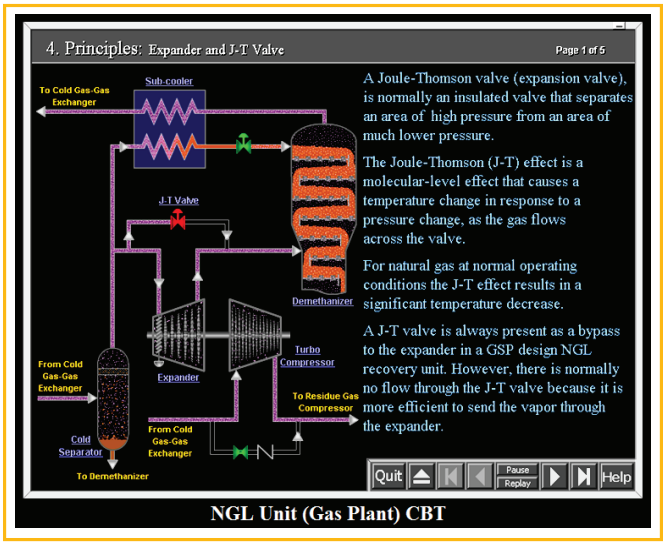
Startup
- Introduction
- Normal Startup

Shutdown
- Normal Shutdown
- Emergency Shutdown

Troubleshooting
- Contamination Problems
- Temperature Spike
- Expander and Compressor Issues
- Feed Pressure Reduction
- Tower Flooding & Cold Spin



NGL Unit (Gas Plant) CBT



NGL Unit (Gas Plant) 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

GSE Solutions
www.gses.com/EnVision

EnVision

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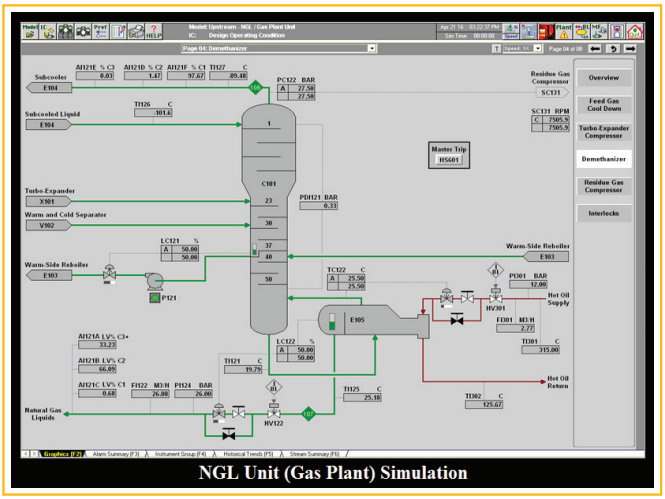
Simulation

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.

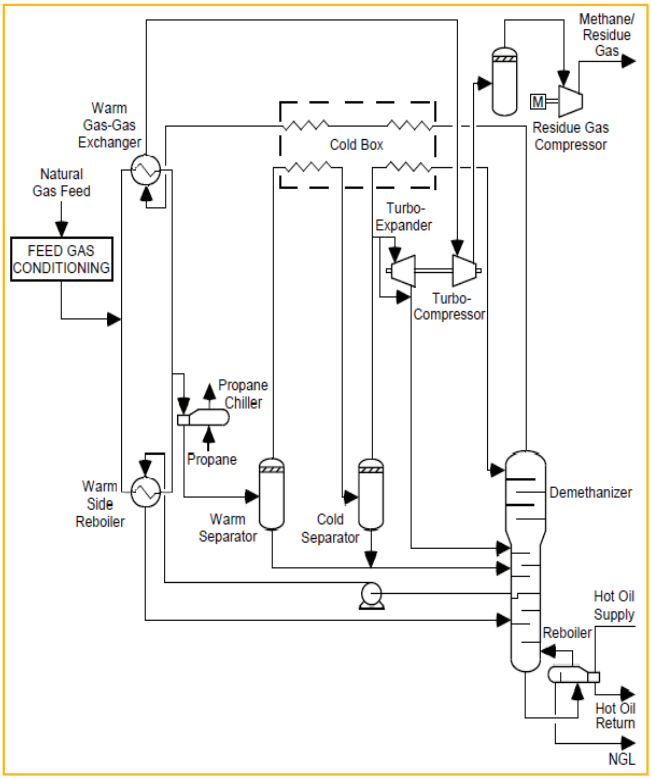
The Simulator allows a Trainee to Practice:

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


NGL Unit (Gas Plant) Simulation

Major Equipment:

- Warm Gas-Gas Exchanger
- Warm Side Reboiler
- Propane Chiller
- Warm Separator
- Cold Gas-Gas Exchanger
- Cold Separator
- Sub-Cooler
- Turbo-Expander with J-T Bypass Valve
- Demethanizer
- Hot Oil Reboiler
- Residue Gas Compressor
- Residue Gas Cooler



Key Operating Variables:

- Feed Gas Flow: 56.0 KNM3/H (1978 MSCFH)
- Feed Gas Methane: 85.8 %, Ethane: 43.6 %, Propane: 2.7 %
- Natural Gas Liquids Flow: 26.0 M3/H (3.9 MBPD)
- Natural Gas Liquids C1 0.7 %, C2 66.1 %, C3 33.2 %
- Residue Gas Flow: 49.8 KNM3/H (1759.5 MSCFH)
- Residue Gas Gross Heating Value: 39938 KJ/NM3 (1072 MBTU/MSCF)
- Residue Gas C1 97.67 %, C2 1.47 %, C3 0.03 %
- Cold Separator Pres.: 62.8 BAR (910.8 PSIG)
- Cold Separator Temp.: -43.6 C (-46.5 F)
- Turbo-Expander Flow: 36.8 KNM3/H (1300 MSCFH)
- Subcooler Flow: 15.5 KNM3/H (547.6 MSCFH)
- Demethanizer Top Pres.: 27.5 BAR (398.8 PSIG)
- Demethanizer Top Temp.: -89.5 C (-129.1 F)
- Demethanizer Reflux Temp.: -88.7 C (-127.7 F)
- Reboiler Vapor Temp.: 25.5 C (77.9 F)

- 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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