EnVision
e-Learning & Universal Simulation

LNG Unit (Single Mixed Refrigerant)

A self-paced MultiMedia based Tutorial/CBT and real-time dynamic simulation of a Single Mixed Refrigerant - LNG Unit.

Tutorial/CBT:

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

Overview

- Introduction
- LNG Production Process Overview
- Liquefaction Methods

Process Equipment

- Main Cryogenic Heat Exchanger
- Knock Out Drum and MR Compressor
- Propane Chiller and MR Flash Drum
- Cryogenic Liquid Expander
- End Flash Drum

Startup Operation

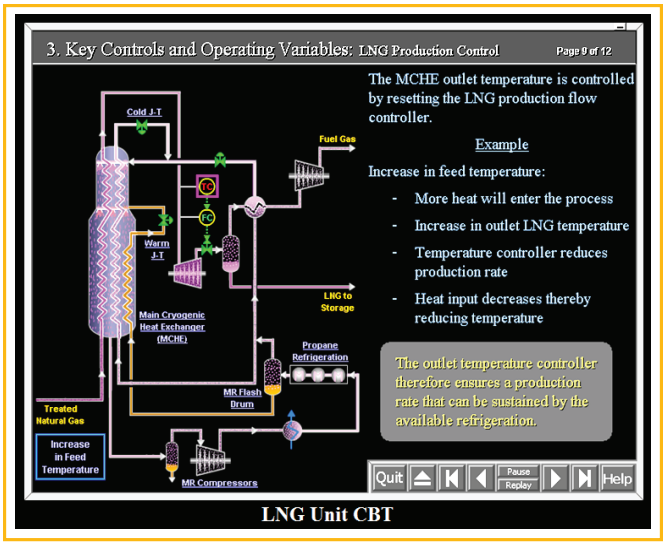
- Introduction
- Pre-Cooldown
- Final Cooldown

Shutdown Operation

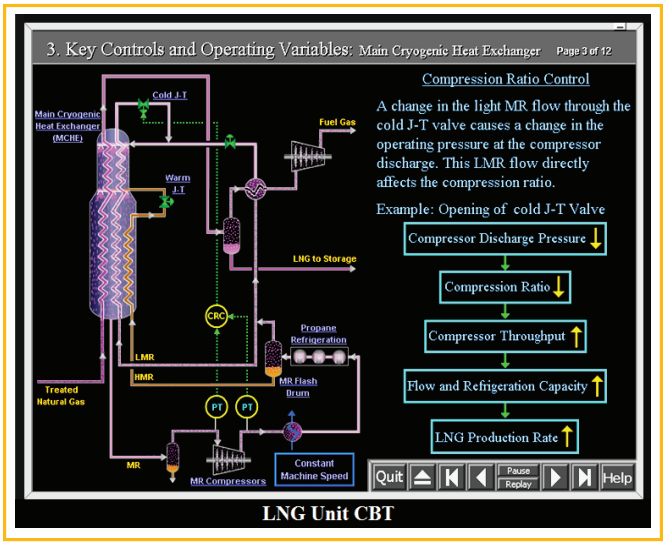
- Normal Shutdown
- Emergency Shutdown

Key Controls and Operating Variables

- Main Cryogenic Heat Exchanger (MCHE)
- MR Compressor and Composition Control
- LNG Production Control
- End Flash Unit Pressure



LNG Unit CBT



LNG Unit 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

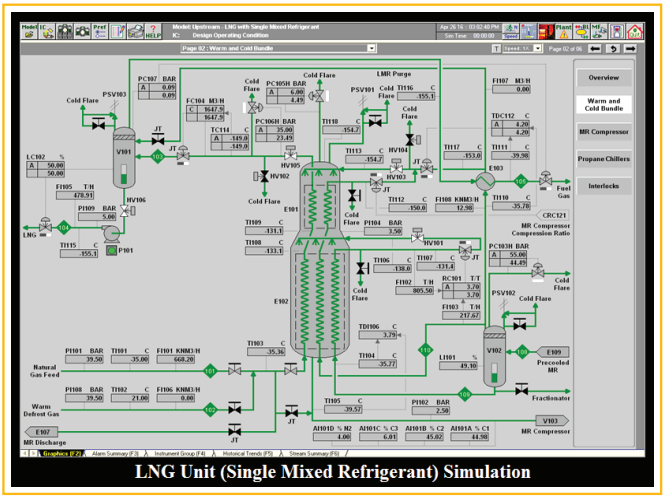
LNG Unit - Single Mixed Refrigerant

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

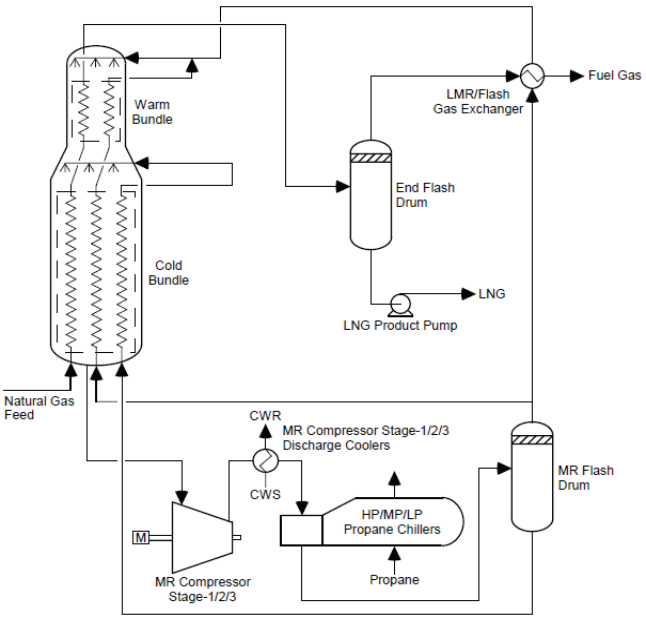

LNG Unit (Single Mixed Refrigerant) Simulation

Major Equipment:

- Warm & Cold Bundle Exchangers
- MR Compressor (3 Stages)
- MR Compressor KO Drums
- Propane Chillers (HP/MP/LP)
- MR Flash Drum
- End Flash Drum

Key Operating Variables:

- Natural Gas Feed Flow: 668.0 KNM3/H(566 MMSCFD)
- Natural Gas Feed Temp.: -35.0 C (-31.0 F)
- LNG Production: 480 T/H (1055 MLB/HR)
- LNG Temp.: -155 C (-247 F)
- Warm Bundle MR Out Temp.: -39.6 C (-39.3 F)
- Warm Bundle LNG Out Temp.: -131.0 C (-203.8 F)
- Cold Bundle MR In Temp: -154.7 C (-246.5 F)
- Cold Bundle LNG Out Temp.: -149.0 C (-236.2 F)
- MR Composition: C1 45 %, C2 45 %, C3 6 %, N2: 4 %
- MR Compressor Compression Ratio: 13.4
- HP C3 Chiller MR In Temp.: 34.5 C (94.1 F)
- LP C3 Chiller MR Out Temp.: -35.8 C (-32.4 F)
- HMR Flow: 805.5 T/H (1775 MLB/HR)
- LMR Flow: 217.7 T/H (480 MLB/HR)
- HMR to LMR Ratio: 3.7 T/T (3.7 MLB/MLB)



- 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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