



NGL Extraction Fundamentals for Facilities Engineers- Virtual, Blended Short Course

COURSE

About the Course

This short course is from the industry-standard Gas Conditioning and Process course (G-4), known globally as the Campbell Gas Course. Each session will follow the format below:

Days 1-2:

- 5.5 hours prerequisite e-Learning modules (participants may test out)
- 2.5 hours required e-Learning modules

Day 3:

- 2 hours virtual, instructor-led session, 9:00-11:00 CST (GMT-6)
- 2 hours e-Learning and problem assignments

Day 4:

- 2 hours virtual, instructor-led session, 9:00-11:00 CST (GMT-6)

[Click here to see the full G-4 Short Course listing](#)

NGL Extraction is a key processing unit for any gas conditioning or processing facility. Whether for hydrocarbon dewpoint control (minimal NGL recovery), or for deep NGL extraction (C2+ recovery that can be achieved in turbo-expander plants), the NGL Extraction unit is the heart of the gas processing plant.

This short course details the processing technology options for hydrocarbon dewpoint control and deep NGL extraction, and discusses the considerations that are important to the most optimal process selection for a given field development. The course content will meet the needs of a facilities engineer that is supporting a hydrocarbon dewpoint facility, moderate NGL extraction plants, as well as those assigned to Gas Sub-cooled Process (GSP) or turbo-expander facilities. The key pieces of equipment will be covered, as well as the overall combined processing unit.

The self-paced online modules cover the following topics:

- NGL Extraction
- Compact heat exchangers and fired heaters
- Operation of Expansion Refrigeration Devices
- Common Process Configurations for NGL Extraction
- Types of Internals in Mass Transfer Columns

The virtual, instructor-led session will review the methods required to analyze the heat and material balance for NGL extraction plants from first principles. The two problem assignments will compare and contrast the differences between two different technologies used for hydrocarbon dewpoint control (mechanical refrigeration and turboexpander plants). These learnings also apply directly to GSP plants.

The problem debrief and round table discussion session will cover the practical learnings gained from the problem assignments. The difference between lean and rich gas processing will be discussed. A deep discussion on the limitations on brazed aluminum heat exchangers and their operating considerations will be held to raise the awareness of the issues associated with this type of heat exchanger. During the round table discussion, common operating problems of refrigeration and turboexpander facilities and their potential solutions will be discussed where the participants will have the opportunity to share their experiences and ask specific questions regarding their specific facilities.

Prerequisites, which participants can test out of, include Basic Conversion, Gas and Liquid Physical Properties, Multicomponent Phase Behavior, Effect of C6+ Characterization on Phase Behavior, Fundamental Applications of Phase Envelopes, Thermodynamic Principles and the First Law of Thermodynamics, Second Law of Thermodynamics and Energy Balance Equations, and Using PH Diagrams to Perform Energy Balance Calculations.

Target Audience

Production and processing personnel involved with natural gas and associated liquids, to acquaint or reacquaint themselves with gas conditioning and processing unit operations.

This course is for facilities engineers, process engineers, senior operations personnel, field supervisors, and engineers who select, design, install, evaluate, or operate gas processing plants and related facilities.

These short courses are ideal for mid-career professionals that have experience in the industry and have been transferred to a new role or assignment.

They are also ideal for new engineers that need to get up to speed quickly on the primary principles of gas processing with a deep dive on the issues of the short course topics.

You Will Learn

- Different types of process technology used for NGL extraction: JT valve, Refrigeration and Turbo-expander plants
- Common configurations for the different levels of NGL extraction and their typical recovery levels achievable
- Shrinkage and why it is important for the analysis of these facilities
- Analysis of the performance of refrigeration plants and turbo-expander plants
- Common operating problems for NGL Extraction facilities and their potential solutions
- Operating concerns associated with BAHEs and mitigation methods

- Factors in the selection of NGL extraction technology

Course Content

Primary course content:

- NGL Extraction
- Compact Heat Exchanger and Fired Heaters
- Operation of Expansion Refrigeration Devices
- Common Process Configurations for NGL Extractions
- Stage Separation vs Fractionation
- Types of Internals in Mass Transfer Columns
- Fundamentals of NGL Extraction Lecture
- Self-Directed Problem Assignment
- Problem Debrief and Experience Round Table

Optional content:

- Mercury Removal
- Application of Refrigeration Systems
- Simple Refrigeration Systems

Product Details

Categories: [Midstream](#)

Disciplines: [Gas Processing](#)

Levels: [Foundation](#)

Product Type: [Course](#)

Formats Available: [Virtual](#)

Instructors: [Dale Kraus](#) [Mahmood Moshfeghian](#) [Kindra Snow-McGregor](#)