

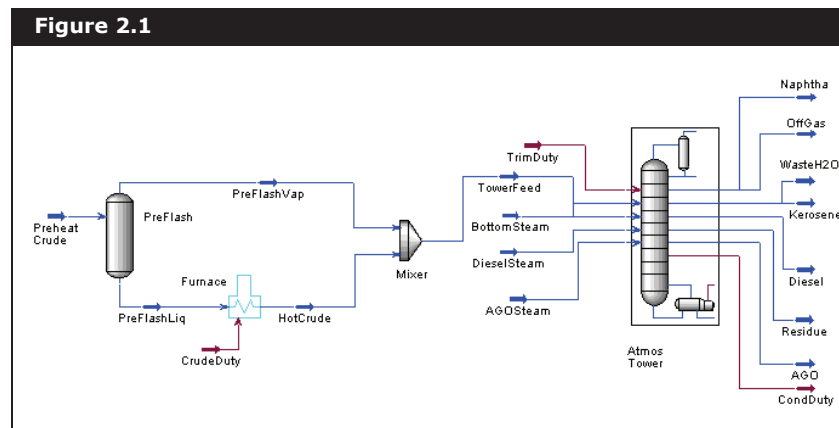
2.1 Introduction

You will build the Refining simulation using the following basic steps:

1. Create a unit set.
2. Choose a property package.
3. Select the non-oil components.
4. Characterize the Oil.
5. Create and specify the preheated crude and utility steam streams.
6. Install and define the unit operations in the pre-fractionation train.
7. Install and define the crude fractionation column.

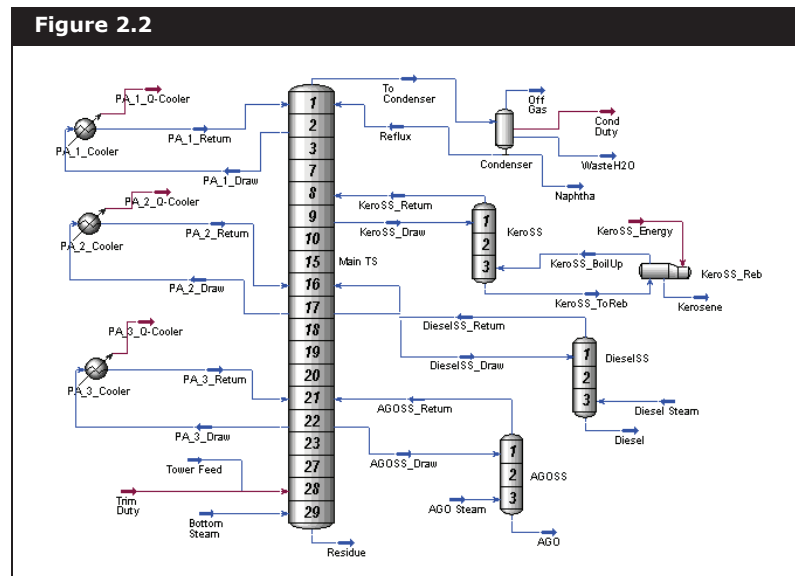
This complete case has also been pre-built and is located in the file **TUTOR2.usc** in your UniSim Design\Samples directory.

In this tutorial, crude oil is processed in a fractionation facility to produce naphtha, kerosene, diesel, atmospheric gas oil, and atmospheric residue products. Preheated crude (from an upstream preheat train) is fed to a pre-flash drum where vapours are separated from the liquids, which are heated in a furnace. The pre-flash vapours bypass the furnace and are recombined with the hot crude from the furnace. The combined stream is then fed to the atmospheric crude column for fractionation. The main flowsheet for this process appears below.



The crude column consists of a refluxed absorber with three side strippers and three cooled pump around circuits. The column sub-

flowsheet appears below.



The following pages guide you through building a UniSim Design case for modeling this process. This tutorial illustrates the complete construction of the simulation, from selecting a property package and components, characterizing the crude oil, to installing streams and unit operations, through to examining the final results. The tools available in UniSim Design are utilized to illustrate the flexibility available to you.

Before proceeding, you should have read [Chapter A - UniSim Design Tutorials](#) which precedes the Tutorials in this guide.

2.2 Steady State Simulation

2.2.1 Process Description

This example models a crude oil processing facility consisting of a pre-fractionation train used to heat the crude liquids, and an atmospheric crude column to fractionate the crude into its straight run products. The