



# Process Notes



*Modular units can have modern technology*

## Modern Crude Distillation, Modularized

Global interest in modular refinery construction is surging. Small modular refineries are attractive to investors for several important reasons:

### **SPEED**

Project time from contract execution to start-up can be as short as 18–24 months.

### **LOGISTICAL ADVANTAGES**

Modular refineries can be built in remote locations to realize efficiencies in supply and transportation of raw crude and refined products.

### **LOW INITIAL COST**

Small relative size makes initial capital cost more manageable. Modules can be constructed in the shop with nearly 100% productive time, and turnkey fabrication and construction services lower the likelihood of project delays or cost overruns.

For a project to realize the benefits listed above, it has to start up and run reliably. Saving initial capital by cutting corners is a doomed strategy. Cost savings should result from clever flow schemes that minimize equipment and module count without sacrificing product yields or unit reliability.

With the right expertise, it is possible to design industrially proven, reliable equipment to be easily modularized.

Process Consulting Services has engineered over 100 crude/vacuum unit revamps and over 4 MMBPD of grassroots crude unit capacity. We have drawn on all of this experience to develop a unique flow scheme for modular crude/vacuum units. Our modular crude distillation process is fully modern, incorporating time-tested technologies to eliminate common reliability issues. Some of these features, developed in much larger units, have been re-thought to be affordable on a modular scale.

No matter how low the initial cost of a crude unit is, the investment will not pay off if the unit is plagued by avoidable problems. Poor desalting (corrosion), pre-flash tower foaming (off-spec naphtha), tray plugging (poor fractionation and product quality), etc. can all be mitigated by thoughtful front-end design.

Through creative flowsheet and equipment design, PCS is able to significantly reduce the number of modules required to build a modern crude distillation unit that maximizes valuable product yield, energy efficiency, and reliability.

*Photo Credit: Honeywell UOP*



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