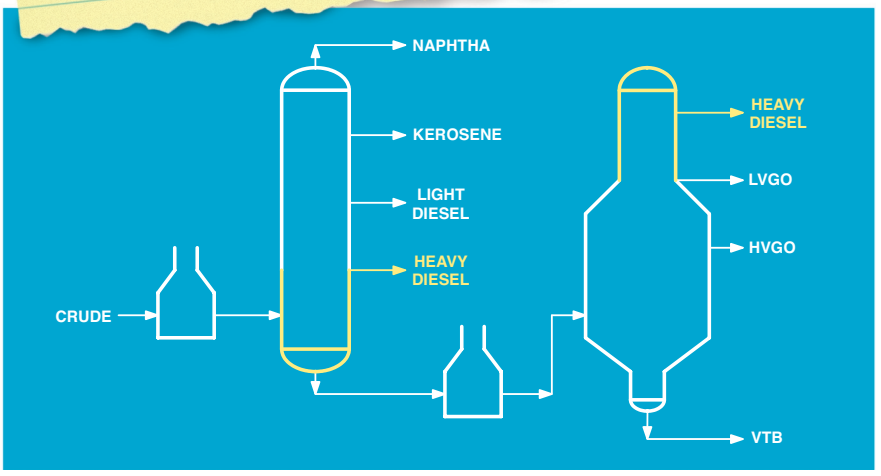
Process Notes



Some Do's and Don'ts of Project Execution

A widely studied in-depth survey* identified 18 key factors that influence selection of engineering contractors. Project management (PM) capability was number 1. Conceptual engineering (CE) capability was number 17. Now, there can be no argument about number 1. But ranking CE next to last raises some serious questions about how the industry views the importance (or lack of it) of this aspect of project work. Is this view justified?

Consider this: CE, which ideally consists of feasibility study, conceptual process design and preliminary estimating, can have a major influence on roughly 60% of total invested cost. In many projects, however, only superficial work is rushed through this phase, with the result that scope is poorly defined and can keep growing as work progresses, inflating CAPEX and stretching out schedules. Should sufficient effort be put into CE, though, scope growth can be controlled. There will be little need for "value engineering", "scope rationalization" or other unsatisfactory stop-gap measures.

Consider this too: skimping on conceptual engineering does not make budgetary sense. The cost of adequate CE can run no more than 1.5-2% of total CAPEX for larger revamps, and 10% for smaller ones. Is it really wise, therefore, to starve this important initial phase of a project? Whether one needs to treat it as an expense or a capital cost, it seems clear that the most cost-effective route is to spend a few more dollars up front and save a bundle downstream.

**Oil & Gas Journal, July 14, 2003, pp 54-56*

Particular Importance for Revamps

It is especially important to devote sufficient effort to conceptual engineering in a revamp. Delays in start-up of a grass roots project means postponement of future income. Delays in a revamp means loss of current income. Every day of down time can result in a large loss of revenue now. With management under the gun to maximize revenue, is this acceptable?

But just why are requirements for conceptual engineering so much more stringent for revamps? With many grass roots projects CE can be adapted or taken whole from similar or identical process units. But no two revamps are alike. Every one is unique. Without an

exact knowledge of limitations of existing process, equipment, plot area, piping and off-sites, it is impossible to define an accurate work scope. But it is common knowledge that existing process and equipment performance may not follow original design. OEM data sheets do not necessarily reflect reality. Process data management system information may be missing, existing instrumentation may be faulty, and non-idealities commonly exist. But to control scope growth computer simulations must be calibrated with actual data. And that task can be accomplished only in painstakingly carried out conceptual engineering.

For a broader view of conceptual engineering, ask for Technical Papers 169 and 190.

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