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Top Ways a Refinery Can Use to Help Weather Current Market Conditions

What are the top ways a refinery can use to help weather current market conditions is a question we posed to our 160+ engineers. This is the next article in the series which includes responses from several different authors.

John Wilbur

- Slowly reduce inventory in crude and product tankage.
- Reduce supervisory personnel by 10% to increase productivity and responsibility of remaining staff.
- Conduct a "what can we do to improve profitability" contest with all personnel on an individual basis. Offer prizes.
- Reduce overtime-paying assignments and urge supervisors/managers to be more productive and effective at planning overtime.
- Sell off mothballed process units to generate cash flow.
- Reduce or eliminate bonus payments to highly paid managers and executives.
- Terminate product lines that operate at a loss. Possibly sell these assets to another refinery.
- Defer major capital expenditures.

Gordon Thielvoldt

- Recognize what you do well and why. Celebrate those and leverage to improve other areas.
- Engineer your way out of repeat maintenance with small groups to tackle repeat maintenance offenders. Heat exchangers, rotating equipment, reactors, towers, roads, all have some items that fail more than others. There are engineering fixes that will eliminate or drastically reduce repeat maintenance costs.
- Look for ways to expand your market place, gasoline retails around \$6.00 in Australia. Coke improves the quality of concrete, etc.
- Engineer your way to longer unit run lengths. It can be done.
- Make specialty products, non-ethanol gasoline sells for \$1.00/gallon premium in some states.
- Ask all your employees for ideas on how you can improve.

Upcoming Training Courses

- **API 510 Pressure Vessel Inspection**
September 12-14, 2017
Fort Erie, Ontario, Canada
 - **API 936 Refractory Inspection & Code**
October 24-26, 2017
Fort Erie, Ontario, Canada
- For more information, see our website at www.carmagen.com.

Work Highlights

Alkylation

- *Provided assistance to a major refining association with technical input and information on alkylation processes.*

Process Development

- *Provided pioneering R&D guidance for our client's prototype biodiesel technology, which included defining a Pre-Gate 1 economic model relevant for decision making. Heavily involved in technology development R&D for our client's prototype MSW technology that flexibly handled a range of feeds, including establishing a demonstration pilot plant design basis. Based on that design basis, we also prepared the process design package with mechanical definition for critical equipment.*

Training

- *Facilitated opportunity identification workshops for a chemical company. These workshops involved brainstorming novel technology improvements and idea shaping activities with the goal of focusing efforts on attractive aspects identified for further research and development.*

Richard Burkhart

- Use existing engineering folks to do energy audits, find ways to reduce energy consumption.
- Sell LP steam to neighbors.
- Improve yields by upgrading to better/newer cat cracker catalysts.
- Reoptimize use of contractors vs. in-house manpower.
- Tighten up on flare and other hydrocarbon losses.

Byron Nicholas

- In general, the refineries are benefitting from the lower cost supplies. Those that are in a position should lock in “lower price” supply contracts for as long as they can. This assumes that we have reached the bottom or we are very near the bottom.
- Those that can, process wise, adjust to lower quality crudes since may be able to get better deals on the spot market. This could increase their margins and also provide an outlet for those producers who are having issues locating buyers.
- Refiners should also keep looking at ways to increase their overall operating efficiency. Plant air systems, process insulation systems, pumping systems, and other operating support systems should all receive a thorough review, not only during these down market times but over a client-established period of time.

About the Authors

John Wilbur has over 40 years experience as a process engineering consultant, 30 of that with Exxon Research & Engineering Company. He is a recognized expert and consultant for H₂ plants and H₂ recovery as well as a process technical advisor for new and recommissioned H₂ plant start-ups. He has had numerous successes in troubleshooting and resolution of H₂ plant incidents and was a presenter for International Technical Seminar on Hydrogen Plant Operations.

Gordon Thielvoldt has over 45 years refining experience in the oil and gas industry including experience as Refinery Maintenance Manager, Turnaround Manager and Refinery Capital Projects Construction Manager. He is experienced in all phases of refining: planning, execution, problem solving, contracts, finances, engineering, scientific development, oil spill cleanup (Valdez), heavy lifts, capital, maintenance, all units and refinery operations.

Richard Burkhart has over 40 years experience in technology, marketing, and new product introductions with one of the top rate chemical companies worldwide. He has diverse experience in leading teams of professionals.

Byron Nicholas has 39 years of diverse Mechanical and Facilities Engineering experience in the energy industry. Engineering field of practice has focused on work directly performed on an extensive number of oil and gas development projects in the Offshore and Onshore operating areas.

Please contact Vince Carucci (vcarucci@carmagen.com) if you'd like more information on Carmagen's expertise in these areas.

