



HYDROPROCESSING UNIT SURVEY

Achieving multi-million dollar results does not need to cost millions of dollars in consulting fees. It just takes a focused effort by experienced Carmagen engineers – engineers who have done this before and know how to achieve maximum results from your investment.

<p>OBJECTIVE:</p>	<p>The objective is to identify operational changes and low cost, high impact projects to achieve world-class hydroprocessing unit performance excellence. The specific objectives of the surveys are always set consistent with the requirements of refinery management.</p>
<p>UNITS INCLUDED IN SURVEYS:</p>	<p>Hydroprocessing units treating alkylation plant feeds, reformer feeds, jet kerosene, diesel, heating oil, atmospheric and vacuum residua, and FCC feeds; hydrocracking units; and all other fixed-bed hydrotreating units.</p>
<p>SURVEY METHODOLOGY:</p>	<p>A small team of Carmagen Engineering, Inc. process and engineering technology specialists together with the refinery-designated contacts conduct a site survey. The survey builds on existing information such as equipment drawings, maintenance history, operational and reliability issues, catalyst performance data, hydrogen balances, and focuses on the following areas:</p> <ul style="list-style-type: none"> • Product yield and quality improvements and low cost capacity expansion opportunities. • Operating cost reduction – hydrogen consumption, catalyst selection and replacement frequency, energy conservation opportunities, etc. • Reliability improvement – equipment fouling mitigation, catalyst contacting efficiency, hot spots, unit performance monitoring, etc. • Inter-process synergies – opportunities for optimizing FCCU and FCCU feed pretreatment operations, reformer and reformer feed pretreatment operations, etc.



Profit Improvement

Process/
Equipment Audits

<p>SURVEY RESULTS:</p>	<p>A close out presentation is made to refinery management for final acceptance of the survey results. Final documentation of the results follows shortly thereafter and typically includes the following:</p> <ul style="list-style-type: none"> • Specific action plans to implement improvements in product yields and qualities, including improvement targets and measures of success. Low cost capacity expansion opportunities. • Highest pay-out operating cost reduction opportunities including priority action plans. • Short-term and long-term steps for improving operations, reliability and maintenance. Specific hardware items where upgrades would be beneficial. • A strategy for capturing inter-process synergies. • Areas where Carmagen Engineering, Inc. could further contribute to hydroprocessing profitability.
<p>SURVEY COST:</p>	<p>The cost depends on the number and complexity of the hydroprocessing units to be surveyed. Generally, a two-week site visit is sufficient to achieve the survey objectives. We will work within your budget to ensure maximum results with minimum investment.</p>



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Profit Improvement

**Process/
Equipment Audits**