PERF

- Petroleum Environmental Research Forum
- Formed by USA oil companies in 1986 to promote co-operative research in EH&S areas
- PERF acts as a information source for projects
- Projects are stand-alone, financed, owned and operated by the participants
- Projects can be $100k to $3M+
- Usually 5 – 10 projects active
- Project info available at [www.perf.org](http://www.perf.org)
PERF 91-14

- “Reducing the Desalter Environmental Impact”
- Completed in 1993
- Participants included Amoco, Arco, BP, Chevron, Exxon, Mobil, Petro-Canada, Phillips, Shell and Texaco
- 3 phases:
  1. Desalter survey of issues
  2. Review of technologies to address issues
  3. Field testing of selected technologies
Main issue addressed was emulsion breaking
Technologies reviewed were Hydrocyclone, V-sep, and Unipure combination
Technology field tested was Unipure
Test technically a success but Unipure failed as a commercial venture
Project led to spin-off projects studying emulsion fundamentals
PERF 2004-06

• Update of 91-14
• Tighter environmental regs, heavier crudes, higher throughputs
• 12 more years of experience
• Look at updated technology both hardware, software and chemical solutions to handle emulsions and solids
• Include desalter in context
  – Crude quality and management issues
  – Desalter operation
  – Desalted crude issues
• Use Heavy Canadian crude as surrogate heavy crude
• Results generic for heavy crudes
Notes

• Desalter generated issues can have a significant impact throughout the refinery – both crude and wastewater
• Desalter issues can limit crude thruput and/or crude slate optimization
• Many different operating philosophies and results – even with the same crudes and similar equipment
• Best practice review can optimize current asset base
• Lessons learned can avoid spending capex on low value projects
• Industry group can test new technology collectively at reduced cost and risk
• Larger talent pool available to vet testing protocol
More notes

• Refinery visits provide the opportunity for a much fuller understanding of operating issues, Lessons Learned and Best Practices than a mailed-in paper or telephone survey.
• Refineries being surveyed on-site would cover out of pocket expenses for the surveyor, but the project would cover professional service time.
• Results will be shared but blinded.
• Some non-refiner participants may wish to make in-kind contributions especially in the testing phase.
Project Scope

• Proceed with two phases
• First phase is combination of refinery survey of issues and update of potential solutions including:
  • New hardware
  • New chemistries
  • Improved operating practices
• Second phase will be field testing of the selected option(s)
Project Timing

- Phase 1 – Complete by Q3 2006
- Phase 2 – Complete by Q1 2007
Project Costs

- Project costs will be determined by the project scope and the number of participants.
- Normally costs are shared equally, but may include in-kind contributions.
- Phase 1 estimate - $50K per participant
  - Assuming 6 participants
- Phase 2 estimate TBD – need scope and location
Deliverables

• Ideally – technology options to desalt heavy crudes so that the desalter operation does not have a negative impact on the refinery either through high salts in crude, emulsion and solids management or desalter brine constraints
• This would include hardware, chemical and best practice options as well as lessons learned
• Refineries will not have identical desalting solutions, but should be able to select from a common set of options
Questions/Discussion
Contact

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Or visit PERF at www.perf.org