

## Discussion Group P5: Centrifugal Pump Operation, Maintenance, and Reliability

### Leaders:

- Jacek Jarosz (Flint Hills Resources)
- Ralph Borchard (Chevron)
- Scott McPherson (Sulzer)
- Watson Tomlinson (Flowserve)
- Luis Gonzalez (Phillips 66)
- William McCollough (Flint Hills Resources)
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### Suggested Topics:

- Pump/system improvements for energy savings and optimization
- Mean time between failure – how do we measure, and how do we use the metric
- How to create pump reliability in an unreliable plant
- Seal-less versus sealed pump reliability, canned motor pumps versus mag drive pump reliability
- Pump predictive/preventive maintenance program elements
- Measures of effectiveness of preventive and predictive programs for pumps
- Roles of operations and maintenance/reliability in improvements and data collection
- Reliability experience with liquid versus non contacting gas seals applications
- Maintenance philosophy for pumps
- Spare parts – OEM versus non-OEM
- Repairs – OEM versus non-OEM service facilities
- Pump foundation, alignment and pipe strain influence of reliability
- Impact of corporate purchasing alliances on pump reliability
  - Repair facilities alliances
  - New equipment purchasing alliances
- Repair techniques and material improvements
- Portable and on-line monitoring – impact on reliability
- Wireless monitoring – impact on reliability and risk of failure
- Optimization of thrust bearings configuration