

DISCUSSION GROUP P5: Centrifugal Pump Operation, Maintenance and Reliability,

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Proposed topics to be selected from:

Vertical Canned Pumps (VS6 Pumps)

MI Inspections of pumps - (casing thickness) –

How do we know what thickness is good, base line?

Predictive maintenance – how is info recorded

What oil are we using for lubrication bearing housings (oil type, replacement frequencies):

Pump maintenance practices – pull all pump vs just back pullout assy.

Parallel pumping – practices, pump switchover

Motor greasing and use of UT:

Practices for Mothballed Pumps

Repair Specs, use, in house repair specs

Lube oil storage and usage

Mechanical seals and bearings issues

Pump monitoring – how are we doing this and how do we want to do this

Craft training – precision maintenance

Best practices for pump maintenance; Back pullout vs. pulling entire pump:

Open bearing housings vs sealed – wet sump

Seal plan which was not expected – wrong for the application

Preventive/predictive technologies

Off design operation

Mean time between failure (MTBF), other KPI's – how do we measure, and how do we use the metrics

How to create pump reliability in an unreliable plant

Seal-less versus sealed pump reliability, canned motor pumps versus mag drive pump reliability

Mechanical Integrity Inspections of VS 6 pumps in hydrocarbon service

Seals in light hydrocarbon service – operations, risk, leak response, maintenance

Pump predictive/preventive maintenance program elements – philosophy, frequencies.

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 – what constitutes “best practices”

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

- a. Repair facilities alliances
- b. 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

Lubrication system impact on reliability – oil mist versus flood, oil selection

Mechanical Seals

Use of non-metallic vs metallic materials for stationary wear rings

LLDS (Look Listed Feel Smell) – how to build effective daily surveillance by operators and maintenance

Epoxy coating of pump foundations

Bearing isolators – what is the best practice (magnetic vs. others)

Hot alignment – how applied, when needed, application with the current LOTO procedures.

