Meeting Minutes

Meeting Held: Sept 26, 2014

Subject: EPC Rotating Equipment Subcommittee Meeting

Minutes Published: Sept 30, 2014

Attendees:

Peter Temofonte – Elliott Group	Brian Wadas - GE		
Michael Tallman - KBR	Alex Tetlow - MCO		
Arvind Datta - Siemens	Pradeep Thacker - GE		
Kevin Kisor – Man Diesel & Turbo			
Bill Swinton – Dresser Rand			

Item No.	Report	Action Required By	Action Required Date
1	Update contact listing, any newly joining members by next session	BW	10/23/14
2	Nomination of new Secretary: Alex Tetlow will take this position.	Info	
3	Responses to last month's questions were provided by Michael Tallman: a) There is no conference-wide theme, some subcommittees are planning sessions around a specific topic and others are more general. I do not know what the AIChE Spring Meeting Keynote topic will be – I don't think that the speaker has been selected yet. I can say that the Technology / Operations subcommittees are planning one or two joint sessions with Flare being the general topic, and that the Technology Subcommittee is planning one panel session which will cover general trends in petrochemicals (shale gas, Coal-to-Olefins in China, etc) and their impact on Olefins-Producing technologies and development. I am not aware of any general themes otherwise by any of the other subcommittees. b) General schedule and deadlines are as follows: a. Call for Papers Closes – November 14 (all abstracts (topic plus few sentences) must be uploaded by this date) b. Session chairs accept/reject/order papers – December 5 (final content and the order of each session(s) must be finalized by this date) c. Draft Program Available in Confex – December 10 d. Session chair comment on program – December 12 e. Program Goes Live – December 15 (also opening of extended abstract (paper) submission) f. Extended Abstract (i.e. Paper) Submission Closes – March 20 2015 g. Conference – April 26-30 2015 in Austin, TX c) Past info received from MCO. d) Generally the Rotating Equipment sessions have been set on Mondays. I can express your desire for same. I need to inform the Program Chair how many sessions we intend to have as he is working out the program grid based on input from the various subcommittees, so please confirm my question above. e) It is up to the subcommittee, I do not see any problem with it. FYI, some of the other subcommittees use teleconferences as needed. f) No such budget is available g) Last year I think one or two companies hosted students to their facilities one day. Any such initiative would come from individual companies or AIChE.	Info	

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4	First set of paper abstracts (1 – 4) were reviewed and approved. The following abstracts will be posted to the CONFEX site.		10/30/14
	1. Consideration of trapped volume of steam and effect of response time in large steam turbines. Industry specs versus common sense approach.	PT	
	While turbine coupling failures are rare events, the consequences of a coupling failure are potentially catastrophic for both plant equipment and personnel near the machine. Critical to designing an effective safety trip system is the ability to accurately predict the response of the turbine due to a sudden loss of load. This paper assesses the peak overspeed of a large, mechanical drive steam turbine using a numerical technique for dynamic simulation and compares this to the API 612 energy balance method (PTC 20.2-1965). For the energy balance method to accurately predict peak overspeed, the change in efficiency of the energy conversion must be considered during the trapped steam expansion time period. The influence of turbine rotor inertia, trip delay, trapped steam volume, and trip point setting are investigated. Modern digital governors and overspeed trip systems provide the precise speed control, detection and actuation capabilities necessary to reduce the magnitude of an overspeed. Reducing the trip point setting and using an acceleration limit are shown to significantly reduce the peak overspeed for large, mechanical drive turbines.		
	2. Fluid Injection Systems and Coatings to Combat Fouling and Corrosion in Cracked Gas Compressors	PT	
	Fouling and corrosion have long been problems for centrifugal compressors in cracked gas (sometimes called charge gas or feed gas) service in ethylene plants. Fouling occurs when a solid substance, usually polymers, adheres to the internal rotating and stationary surfaces of a compressor in contact with the process gas. It can block the flow path of the compressor, gradually reducing its efficiency and it can cause increased vibration levels in the rotating element. Corrosion is caused by impurities such as hydrogen sulfide, which can be found in the process gas. These impurities can attack the components, even to the point of failure.		
	This paper will explain what these problems are, how they arise, and how to solve them using specialized fluid injection systems and anti-fouling coatings.		
	3. Rerate overview, Aerodynamic, Mechanical, Efficiency considerations, trends.	PT	
	This paper will take into consideration aerodynamic design, mechanical limitations, machine life assessment, and physical space limitations both inside the casing of the machine and on the compressor deck when a plant operator is considering new operating conditions for compressors and/or steam turbines. It will help the operator determine whether it is more beneficial to rerate an existing machine, or replace it with a new drop-in machine.		
	Additionally, the difference in the time it takes to install a rerate and the time it takes to install a new drop-in machine will be evaluated with an eye toward minimizing the duration of a plant turnaround. The role of machine auxiliaries such as oil systems, buffer gas systems, injection systems, and control systems will also be explained.		
	4. Refrigeration Compressor Recycle Quench Control	PT	
	Many olefins plant refrigeration compressors use a spray quench of liquid refrigerant to cool the hot		

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	recycle gas stream. Typically, the recycle flow is managed by an anti-surge control system while the recycle cooling is managed by the DCS. The interactions of these two control systems can lead to flow swings at the compressor inlet and side streams. A coordinated control of both the vapor recycle and liquid recycle flows will ensure the proper amount of cooling is applied without excessive liquid flow that could lead to suction drum level problems. The vapor-liquid equilibrium properties of the refrigerant are used to calculate the split between vapor recycle and liquid recycle to maintain stable recycle flow and proper cooling. A dynamic simulation is used to show the conventional control solution and the coordinated control solution. Additional ideas for papers are as follows. Please email abstract statements to Peter prior to next scheduled meeting. 5. DGS and the new API 692 (approach via a seal vendor) — TM 6. Overview of key selection and design criteria that effect major equipment design — HZ 7. Increase of size of steam turbines and ethylene plant size, considerations on when machinery selection and plant size increase diverge. — AT — 10/20/14 8. Field rerate case study – Williams Geismar – Inclusion of gear into existing train design. — SN 9. Ethylene plant turnaround overview: Planning, HSE, Execution — PT 10. Performance monitoring, field versus factory considerations — BW 11. Ethylene Derivatives – machinery considerations for equipment in the various derivative plants (overview of all plants and equipment overview) — BW Other ideas also welcome.		
5	Meetings going forward are being changed to **Thursday afternoons** in attempts to boost attendance. Oct 23 2014 DR will host Need to finalize abstracts to upload Nov 20 2014 GE will host Need to begin reviewing papers Dec 11 2014 Shell will host Continue review of papers Jan 22 2015 Siemens will host Target for final paper review Feb 19 2015 MCO will host Target for final presentation review March ** 2015: Schedule as needed	PT	Ongoing
6	Michael Tallman to check question on admission for UT engineering students.	MT	10/23/14
7	Bill Swinton to check if guest internet access is available for chair to host WebEx.	BS	10/23/14
	Ethylene Producers Committee **Anti-Trust Agreement**		

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	No activity of the Committee shall involve the exchange, collection or dissemination among competitors of information, or be used for the purpose of bringing about or attempting to bring about any understanding or agreement, written or oral, formal or informal, express or implied, among competitors with regard to costs, prices or pricing methods, terms or conditions of sale, distribution, production quotas or other limitations, on either the timing, or volume of production, or sales, or allocation of territories or customers.		