Agenda for 2006 Conference

Wednesday, October 11, 2006

#	Day	When	Author(s)	Affiliation	Title
		8:00 – 9:00			**Pipeline Simulation Solutions Providers Breakfast**
		10:00			**Registration Starts & Exhibits Open**
		11:30 – 12:30			**Lunch & Conference Start**
		12:00 – 12:15			Welcome Address
		12:15 – 1:15			Pipeline Simulation Solutions Providers Commercial Session
06A1	Wednesday	1:30 – 2:15	Sidney P. Santos Matt Lubomirsky	Petrobras Solar Turbines	Gas Composition Effect on Centrifugal Compressor Performance Gas composition and a set of operating conditions are the basis for compressor design. A methodology is presented to help dealing with changes on gas composition that affects its performance
06A2	Wednesday	2:25 – 3:10	Klaus Brun, David Ransom Rainer Kurz	Southwest Research Institute Solar Turbines	Enthalpy Determination Methods for Compressor Performance Calculations In the field of compressor performance simulation and measurement, the most commonly used method to evaluate compressor performance is based on the analysis of inlet and discharge pressures and temperatures. Combined with gas mixture properties and known mass flow rate, it is a simple process to determine overall compressor power and efficiency. However, the critical step in this process is the conversion of pressure, temperature, and gas property information into both real and ideal enthalpy differences. In addition to the abundance of equation of state (EOS) formulations, there are also multiple methods commonly applied for the calculation of the enthalpy differences. This paper reviews several of the methods used for this critical calculation and provides a comparison using multiple gas compositions.
		3:10 – 3:30			**Break**
06A3	Wednesday	3:30 – 4:15	Alexsander Valeriano Raymundo Castro	Transportadora Brasileira Gasoduto Bolivia-Brasil S.A.	Turbine and Compressor Performance Analysis Through Simulation This paper describes the work developed by TBG to ensure the performance of turbines and compressors in the Bolivia Brasil gas pipeline. This work has increased the reliability of TBG' machines and allows TBG to plan overhauls and maintenance stops in an optimized way.

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06A4	Wednesday	4:25 – 5:10	R. J. McKee and R. A. Hart	Southwest Research Institute	Development of an Optimization Tool for Reciprocating Compressors This paper describes the early development and current status of an optimization program for reciprocating compressors and compressor stations that identifies operating conditions, load steps, and operator controlled variables that minimize fuel usage, maximize throughput, and increase efficiency of individual compressors. The calculation routine and optimization approach will be described and some results of the program use will be presented. The importance of individual compressor optimization for overall optimized station and pipeline results will be discussed and the future direction for the program development will be considered.
		6:00 – 7:30			**Reception**
06B1	Wednesday	1:30 – 2:15	Sophie Jehaes Fakher Raza Paper presented by Jon Barley	Fluxys, Belgium Energy Solutions International, UK	Improving Gas Load Forecast Accuracy – A Practical Approach This paper examines various ways in which the data quality and utilization can be improved to more accurately predict gas demand. The presentation will discuss methods to improve forecasting include automatic selection of the Neural Network model, intelligent combination of weather effects, data cleansing (data pre-processing) and within-day forecasting after abrupt changes (data post-processing). These techniques involve calculated manipulation of both the input and the output data with a view to enhance the accuracy of the forecast.
06B2	Wednesday	2:25 – 3:10	Sven van Veen	GasTerra	Combining distributions prevents commotion This paper discusses a simulation program that is used to determine the demand-supply surplus (or deficit) of a network. The system gets to the surplus by combining distributions. At first total supply is described by a combined probability distribution and afterwards the same is done for the demand network. The surplus is calculated by combing the combined distributions. The presentation discusses these steps together with their mathematical background.
		3:10 – 3:30			**Break**
06B3	Wednesday	3:30 – 4:15	Chantal Chauvelier-Alario Claude Toussaint	Gaz de France	The Geographical Information system of Gaz de France Distribution – From Cartography to Network Calculation This paper discusses the approach followed by Gaz de France to design its data model within its new GIS system.

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					The data model is such that Gaz de France GIS system is not only a cartographic system that includes the distribution equipment holdings of the company, but also designed so that the data are directly usable by a gas network simulation software. The presentation will include the rational behind such a choice followed by Gaz de France as well as the benefit expected by such an approach.
06B4	Wednesday	4:25 – 5:10	Chantal Chauvelier-Alario B. Mathieu Claude Toussaint	Gaz de France	Decision Making Software for Gaz de France Distribution Network Operators: Carpathe This paper describes the functionalities of the software developed for the Gaz de France' distribution network operators. This software is to assist network operators in their decision making process in order to provide security to people and assets while carrying out proper gas supply in an economically efficient manner. The presentation will describe the specific purposes of such a software and its added value to the network operators. A demo will be included in the presentation.
		6:00 – 7:30			**Reception & Exhibits Open**

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Thursday, October 12, 2006

		8:00 – 8:30			**Conference Start**
0601	Thursday	8:30 – 9:15	Alexandre Tepedino, Caetano Frisoli Robert Young Dave Reed, Olga Narvaez, Juan Seriñá	Transpetro Energy Solutions International	How fully integrated automated business systems allow for more efficient pipeline operational and commercial performance. This paper presents the experience of Transpetro in Brazil on how a pipeline company can integrate its operational and commercial practices into a real-time environment to allow safe, efficient, and profitable operations. Operational pipeline modeling/management, SCADA, and commercial transaction systems can be combined to provide hydraulic validations of business transactions and, resultantly, provide a real-time and forward look at pipeline operations. This helps pipeline companies better manage gas shipments on a real-time basis and to comply with issues of restructuring and regulations to avoid unnecessary costs and build revenue.
0602	Thursday	9:15 – 10:00	Saulat Rashid Lone, Dr. Richard Spiers	Sui Northern Gas Pipeline Limited, Pakistan Energy Solutions International, UK	Gas Transmission Development Strategy – A Modeling Approach This paper discusses a gas system medium to long term development strategy to optimize flows from various gas fields to demand centres. Considerations include incremental expansion of facilities, new storage fields, gas characteristics of various gas fields, and new stand alone pipeline projects to demand centres including clusters of power plants.
		10:00 – 10:30			**Break**
0603	Thursday	10:30 – 11:15	Alexander Brodsky, Hemang Maniar, Hadon Nash, Mientao Tsai, Mike Lloyd, Jillian VanZelfden	Tennessee Gas Pipeline, Adaptive Decisions, Inc.	Tennessee Gas Pipeline's Experience with Pipeline Optimization This paper introduces the need of an optimizer tool to a pipeline system. It discusses the mathematical processes which are utilized to determine an optimal compressor unit configuration with given constraints. The presentation will cover the development as well as the use of a pipeline optimizer including fuel savings, user interface, and optimization algorithms.
0604	Thursday	11:15 – 12:00	Philip Carpenter Ed Nicholas	Serrano Systems and Services	Bayesian Belief Networks for Pipeline Leak Detection The experimental application of Bayesian Belief Nets as a

			Morgan Henrie	Nicholas Simulation Services MH Consulting, Inc.	methodology to detect pipeline leaks is described by this paper. The method uses a probabilistic inferencing network, prior estimates of leak probability and instrument errors, and current evidence provided via a hydraulic model and pipeline measurements to calculate a posterior or revised probability that a leak is present. An approach to learn statistical parameters describing instrument error distributions is also described. Output of the leak detection inferencing process includes an alarm based on a specified minimum leak confidence, the leak probability and the leak size.
		12:00 – 1:15			**Lunch**
0605	Thursday	1:15 – 2:00	Anders Johnson, PE Ram Wallooppillai, PE	El Paso	Pipeline Economics – The Art/Science of Designing Greenfield Natural Gas Pipelines This paper will discuss the basics of designing a greenfield natural gas pipeline from a conceptual stage to operation. This paper will discuss, but will not be limited to, various factors such as yield strength of the pipe, internal coating, Maximum Allowable Operating Pressure (MAOP), pipe diameter, safety factor, compressor station spacing, unit selection at compressor stations, future expansion options and their relationship to the design philosophy of a natural gas pipeline.
0606	Thursday	2:00 – 2:45	Jerry L. Modisette	Consultant	What Can Go Wrong? This paper discusses the causes of failed pipeline simulator projects, based on the author's experience developing and implementing pipeline simulators over a period of 28 years. Specific causes discussed include simulator inadequacies, configuration errors, fluid property errors, instrument problems, maintenance problems, contractual issues, and unrealistic expectations. The specific cases will mostly be real-time simulators used for leak detection, batch or composition tracking, power cost optimization, and look-ahead initiation. A few cases will involve off-line simulators. Suggestions will be made for increasing the likelihood of successful simulator projects.
		2:45 – 3:15			**Chairman's Session**
		3:15 – 3:45			**Break**
0607	Thursday	3:45 – 4:30	Rene' Polston	Enterprise Products	Simulation Graphics and Basic Engineering Concepts Lead to

					San Juan Basin Optimization This paper discusses optimization of a low pressure gas gathering system resulting in increased throughput with minimal capital outlay. Optimization is achieved through designating a high pressure backbone, the removal of contract pathing, implementing push compression and identifying liquid traps. The power of simulation graphics will be demonstrated, and the reasoning behind these simple engineering concepts will be explored.
~~0608~~	~~Thursday~~	~~4:30 – 5:15~~	~~Chris Davison, Lars Larsson~~ **~~Rec'd 1st draft, slide, author bios~~**	~~Energy Solutions International, Ltd.~~	~~The secret life of a pipeline.~~ ~~This paper details the life (so far) of a typical pipeline that has been transporting product for over 10 years. It describes how the pipeline, its operations and the associated pipeline management software has been adapted to meet the challenge of the constantly changing operational environment under which it is run. Finally, the paper will demonstrate how having a pipeline model at the heart of the pipeline management system has enabled the pipeline to be operated effectively and efficiently throughout its life – and will continue to do so many years into the future.~~
		6:00 – 7:30			**Reception**

Agenda for 2006 Conference

Friday, October 13, 2006

		8:30			**Start**
0609	Friday	8:30 – 9:15	Oscar Alvarez Hugo Carranza Fernando Pillon	Transportadora de Gas del Norte Total Gas y Electricidad Argentina	Nominal Gas Pipeline Transmission Capacity - A procedure to define nominal capacity This paper analyzes the Design Capacity and the Transmission Capacity of a gas pipeline. The studio of several scenarios and the mean variables set up the bases to define the Nominal Capacity. The presentation will show the model approach and the implementation in System Planning.
0610	Friday	9:15 – 10:00	P.H.G.M. Hendriks W. Postvoll M. Mathiesen R.P. Spiers J. Siddorn	Gassco R&D Foundation Polytec Energy Solutions International Met Office, UK	Improved Capacity Utilization By Integrating Real Time Sea Bottom Temperature Data This paper presents how up-to-date ambient temperatures were integrated in Gassco's Pipeline Modeling System. The improved accuracy of the temperature data has made it possible to offer an increased pipeline capacity and thus to better meet the increased demand for gas during the winter season. The processing of the temperature data and the implementation in the pipeline models will be presented. An analysis of the benefits will also be provided.
		10:00 – 10:30			**Break**
0611	Friday	10:30 – 11:15	Jean Andre Laurent Cornibert	Gaz de France GRTgaz	A Tool to Optimize the Reinforcement Costs of a Gas Transportation Network The paper formulates the problem of reinforcing existing meshed regional gas transmission networks which are mainly made up with pipelines (between 50 to 500) and regulators but with very few compressor stations (at most 2). The presented techniques determine (1) the selection of pipelines to loop, (2) the diameters to lay out along the selected pipelines among a commercial list, and (3) the building timetable in order to minimize the discounted costs. Optimization algorithms to solve these problems will be detailed as well as results on French regional networks.
0612	Friday	11:15 – 12:00	Jason Modisette	ATMOS International, Inc.	Automatic Generation of a Real-time Transient Pipe Model Pipeline leak detection systems often perform compensation

					for the packing and unpacking of the pipe with the aid of a real-time transient model generated from the pipeline configuration. This paper presents an alternative approach that is much easier to configure and maintain, based on the linear transient response of the pipeline as seen in historical SCADA measurements. The theory behind the approach will be discussed, followed by comparison with model-generated results as well as with SCADA measurements from real-world pipelines.
		12:00			**Conference Close**