Utilizing Quantified Risk Assessment in the Offshore Oil & Gas Industry to Support the Principles of Inherent Safety and Continuous Risk Reduction

Donnie J. Carter, BP America Inc., 200 Westlake Park Blvd., Houston, TX 77079, 281-366-2587, donnie.carter@bp.com

Richard D. Beck, BP America Inc., 200 Westlake Park Blvd, Houston, TX 77079, 281-366-6897, beckrd@bp.com

Alistair R. Warwick, Atkins, 920 Memorial City Way, Houston, TX 77024, 713-576-8500, Alistair.Warwick@atkinsglobal.com

ABSTRACT

As part of its global operational management system, OMS, BP has undertaken to drive the principles of inherently safer design and continuous risk reduction into its operations, and these processes are underpinned by a comprehensive understanding of the factors which affect major accident risk. This effort includes the use of the Quantitative Risk Assessment (QRA) technique. While QRA has become an important technique for assessment and management of major accident hazards in the process industries, there has been limited application of the technique to offshore drilling and production facilities in the Gulf of Mexico (GoM).

This paper presents how quantified risk assessment techniques combined with state of the art fire and blast effects modeling is being utilized to assess the potential fire & blast hazards associated with deepwater oil and gas operations in the GoM. A key feature of this work is the identification and evaluation of potential risk mitigation measures which can be incorporated into a facility to potentially reduce associated risk. The paper would include discussion of risk assessment techniques being utilized to support the understanding and reduction of fire & blast risks associated with the operation of the offshore facilities. The paper will also discuss some of the aspects of performing QRAs that are unique to existing offshore drilling and production facilities.