

## **Probabilistic Assessment in E&P – Solving the Implementation Woes**

Vlad N. Trocan, PanCanadian Petroleum Ltd., Calgary, Alberta, Canada

and

William J. Haskett, Decision Strategies Inc., Houston, Texas, USA

Much has been written within the Oil and Gas Industry on the significant benefits of uncertainty and probabilistic assessment systems, yet there appears to be considerable difficulty in their efficient implementation. Commonly, practitioners are confused, misunderstand, or are simply too rigid in their application of pure statistical principles to exploration or development opportunities. At a minimum, this results in invalid assessments and frustration. To avoid this predicament a two pronged approach is recommended; first, train and maintain support for all geotechnical and engineering staff in basic and advanced probability, statistics, and risk analysis with an emphasis on practical implementation; second, ensure middle and senior management receive adequate training to understand how to handle, support, and encourage stochastic methods and output.

Though lognormal distributions are used extensively, as reservoir characteristics and resource tends to follow a lognormal pattern between the 10th and 90th percentiles, over-reliance on a purely statistical approach will lead to invalid assessments. As there is an “art” to geotechnical assessment, there is an “art” to the application of statistical principles. A conceptual approach to resource evaluation, common concepts applied in a consistent manner, is far more effective than a “cookbook” or “checklist” approach. Unfortunately, most training programs and corporate risk guideline documents pay little if any attention to practical concept application.

Middle and senior management have a responsibility to understand the broader aspects of risk analysis and portfolio management. Specific management oriented workshops allow participants an opportunity to apply risking concepts while focusing on broader managerial and portfolio aspects. Discussing ranged inputs and outputs from evaluations during reviews is the fastest way to achieve consistent valid application of probabilistic methods.