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Adopting Risk Analysis Procedures for Development and Production Problems

While the vast amount of capital invested by our industry falls in the development phase, there remains a surprising amount of uncertainty regarding key value drivers after an initial discovery. This eye-opening reality calls for a concerted effort to introduce consistent, systematic and reliable risk analysis procedures to the development realm. For larger companies, portfolios of development opportunities are often examined via sophisticated optimization software to uncover complex, yet subtle project interdependencies. However, if the individual opportunities have been characterized with pervasive bias, the software will be rendered ineffective. For smaller enterprises, the independent geologist must characterize more and more downstream opportunities for increased investor confidence and repeat business.

The challenges of widespread adoption include:

1. Sorting through the additional estimates that contribute to value beyond the reserves potential and chance for more-informed and discriminating decision making, such as production rates, costs, prices and timing;
2. Prudent selection of distribution type and range of possible outcomes for these parameters, recognizing that the lognormal distribution may not be appropriate;
3. Managing the dilemma of how to portray distributions across diverse disciplines, recognizing that in the exploration realm, distribution boundaries are often viewed as departure points, while in the production realm they may be considered immutable restraints necessary to preserve precision;
4. Knowing when the desire for precision can be effectively substituted with a range-limited approximation;
5. Conveying the output information in probabilistic format for fiduciary reporting purposes.