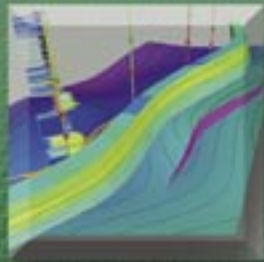
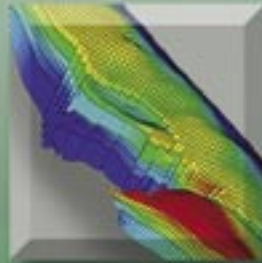
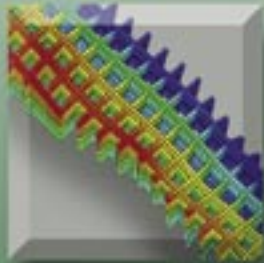
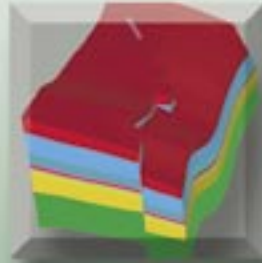
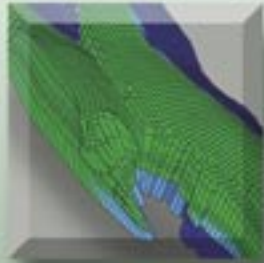


RESERVOIR SIMULATION FOR STRATEGIC DECISIONS

RYDER SCOTT



RES

SIMULATION FOR STRATEGICALLY SOUND ECONOMIC DECISIONS

E&P companies are increasingly making better investment decisions for field development by using reservoir simulation. These built-for-purpose models help you devise development or operational strategies to maximize recovery and profit.

Your objective may be to develop behind-pipe reserves, identify infill-drilling opportunities, optimize a pressure maintenance program or determine efficient well spacing. Or you may have other goals, such as evaluating changes to processing facilities or improving gas-storage operations. Whatever the case, reviewing model runs leads to better decisions by helping predict complex reservoir behavior and field performance under various drilling and operating scenarios.

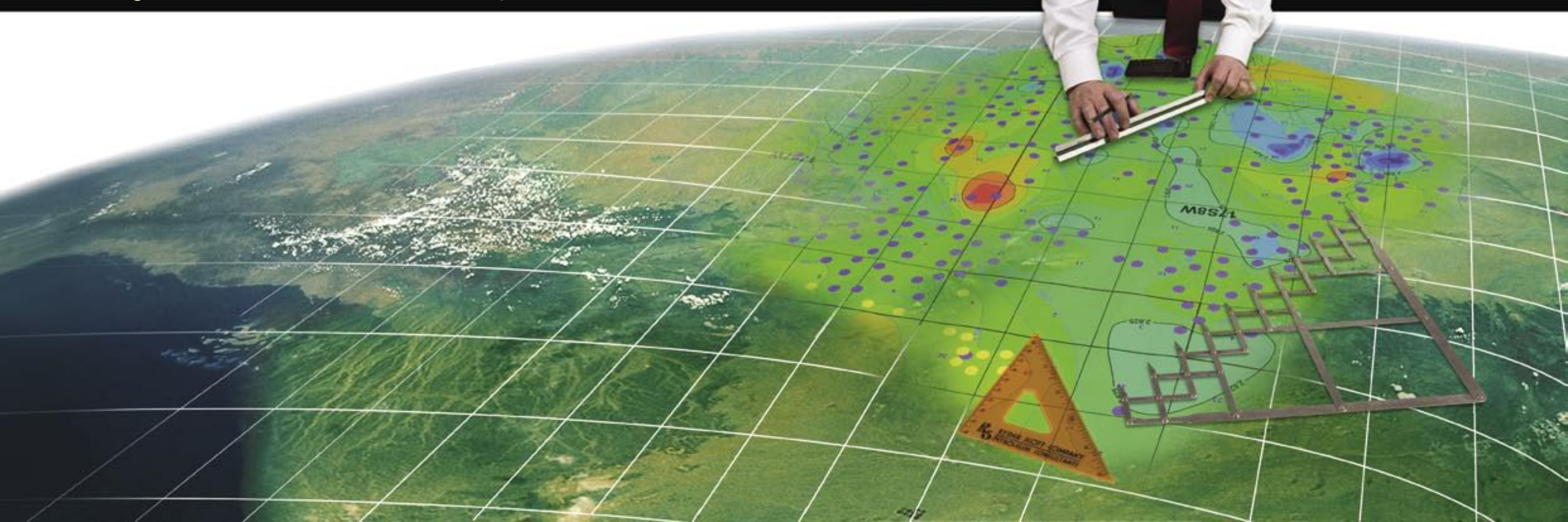
Typically, a simulation study guides and, in some cases, limits development activities that cost far more than the simulation itself. Since drilling and completion

costs can run into the millions of dollars, Ryder Scott reservoir models pay for themselves again and again.

Clients using Ryder Scott reservoir models avoid over-development and over-drilling. They put their projects on the fast track, capture more reserves per well, increase field efficiency, boost ultimate recoveries and improve overall economics.



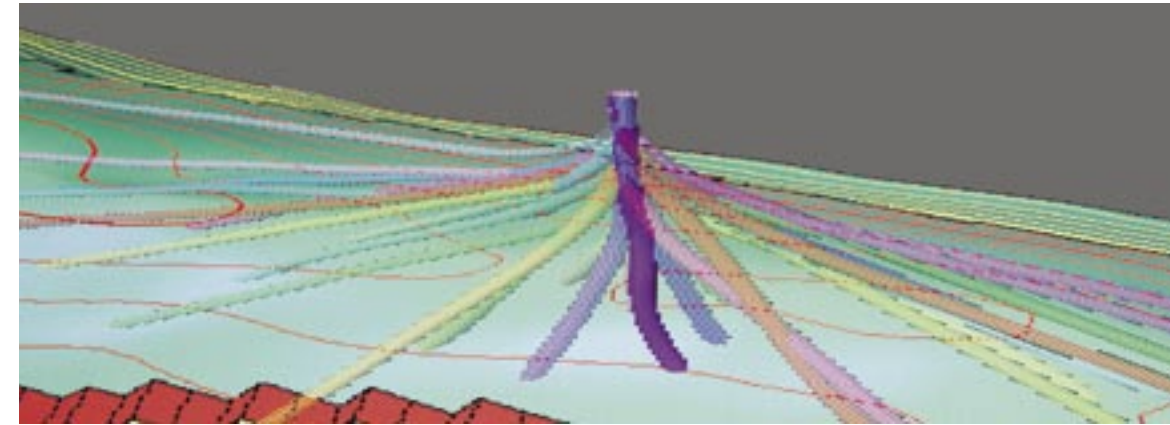
Reviewing model runs leads to better decisions by helping predict complex reservoir behavior and field performance.



THE UTILITY OF THE SIMULATION TOOL

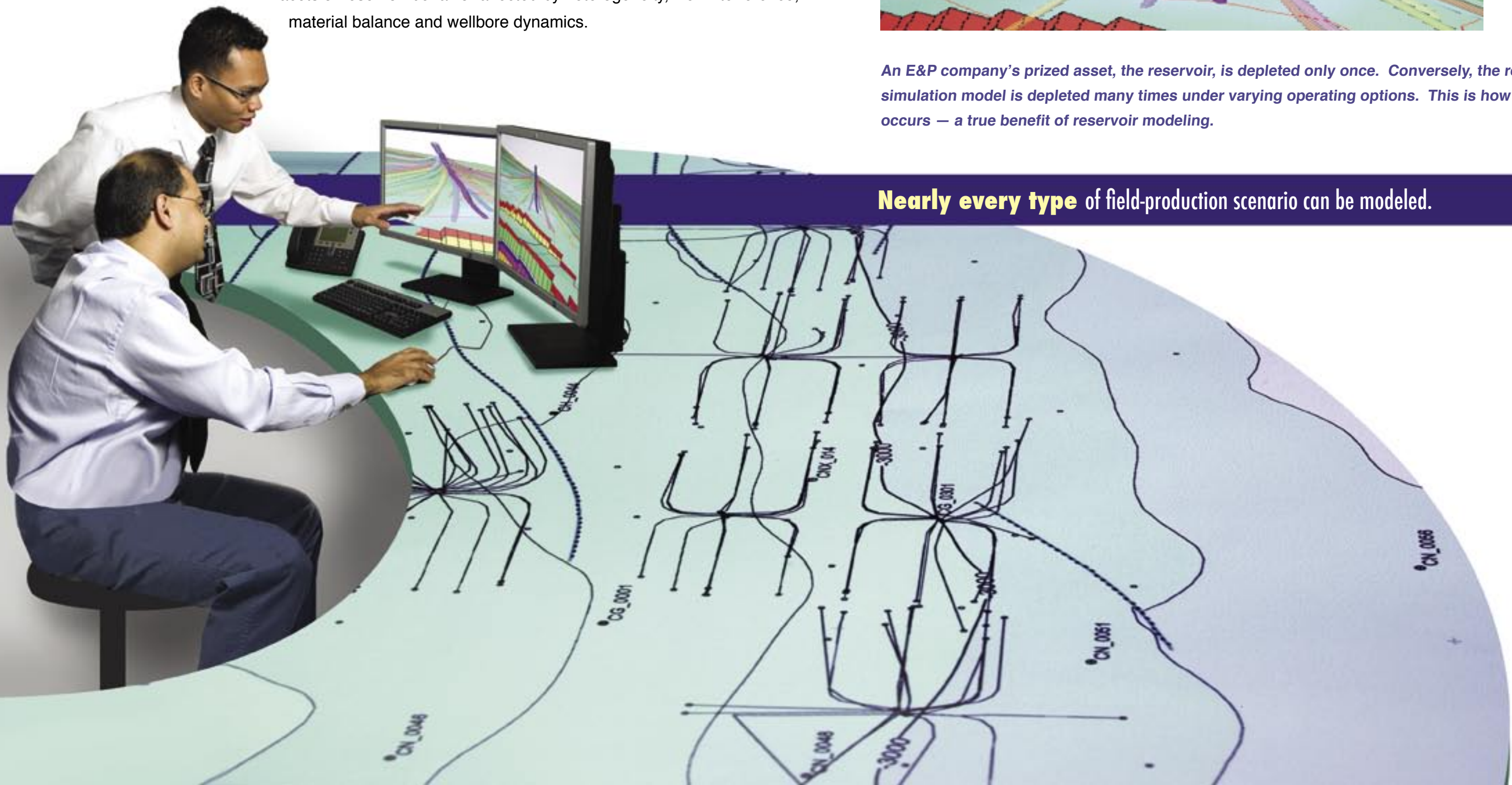
A reservoir simulation model is a tool that helps E&P companies make informed business decisions regarding oil and gas reserves estimates, reservoir management, reservoir performance, process design and strategic planning.

Nearly every type of field-production scenario can be modeled. Ryder Scott constructs and executes models to predict the performance of straight, horizontal and directional wells, well patterns, sectors of fields, entire fields and wellbore tubulars linked to the surface. No other tool can capture the many facets of reservoir behavior affected by heterogeneity, well interference, material balance and wellbore dynamics.

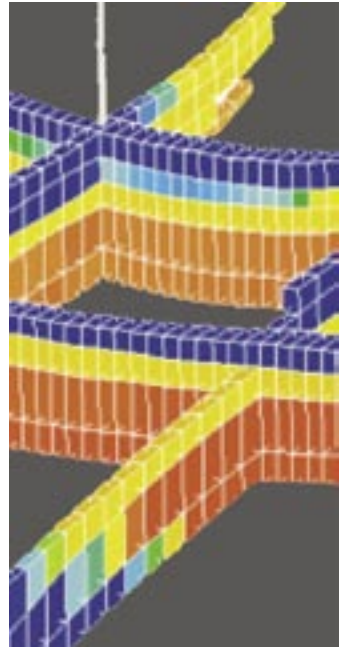


An E&P company's prized asset, the reservoir, is depleted only once. Conversely, the reservoir simulation model is depleted many times under varying operating options. This is how optimization occurs — a true benefit of reservoir modeling.

Nearly every type of field-production scenario can be modeled.



EXPERIENCE — THE ART OF SIMULATION SCIENCE



The Ryder Scott simulation group specializes in developing carefully history-matched models that furnish information vital to optimizing production operations.

Ryder Scott reservoir models typically integrate geophysics, geology, petrophysics, engineering and, when specified, economics. Those disciplines are the basic building blocks of the firm's traditional analytical services and guide the simulation efforts. In that way, Ryder Scott models have more practical relevance than those built by firms without abundant classical earth-science and engineering expertise.

The experienced Ryder Scott simulation team is dedicated to building the least complicated, most dependable model to help make informed business decisions.

Our reservoir models integrate geophysics, geology, petrophysics, engineering and, when specified, economics.

APPROACH — WHERE EXPERIENCE PAYS OFF

Often a streamlined, 3D, black-oil, full-field model—constructed within a fixed budget—provides sufficient enough understanding of the reservoir to facilitate detailed field-development planning. In cases like that, you will realize appreciable benefits at a fraction of the cost of a more detailed, complex model.

Although Ryder Scott conducts complex modeling, including incorporating geostatistics or fully compositional formulations, the firm tries to keep its models uncomplicated, yet effective. That approach ensures that projects stay within allocated budgets.

In situations where a simplified approach cannot address the study objectives, Ryder Scott will propose a workable solution within prescribed budgetary constraints. In every case, the simulation group tailors the simulation to the complexity of the reservoir, objectives of the study and cost and time limitations imposed by the client.



SYNERGY— BLENDING EXPERIENCE WITH ADVANCED TECHNOLOGICAL TOOLS

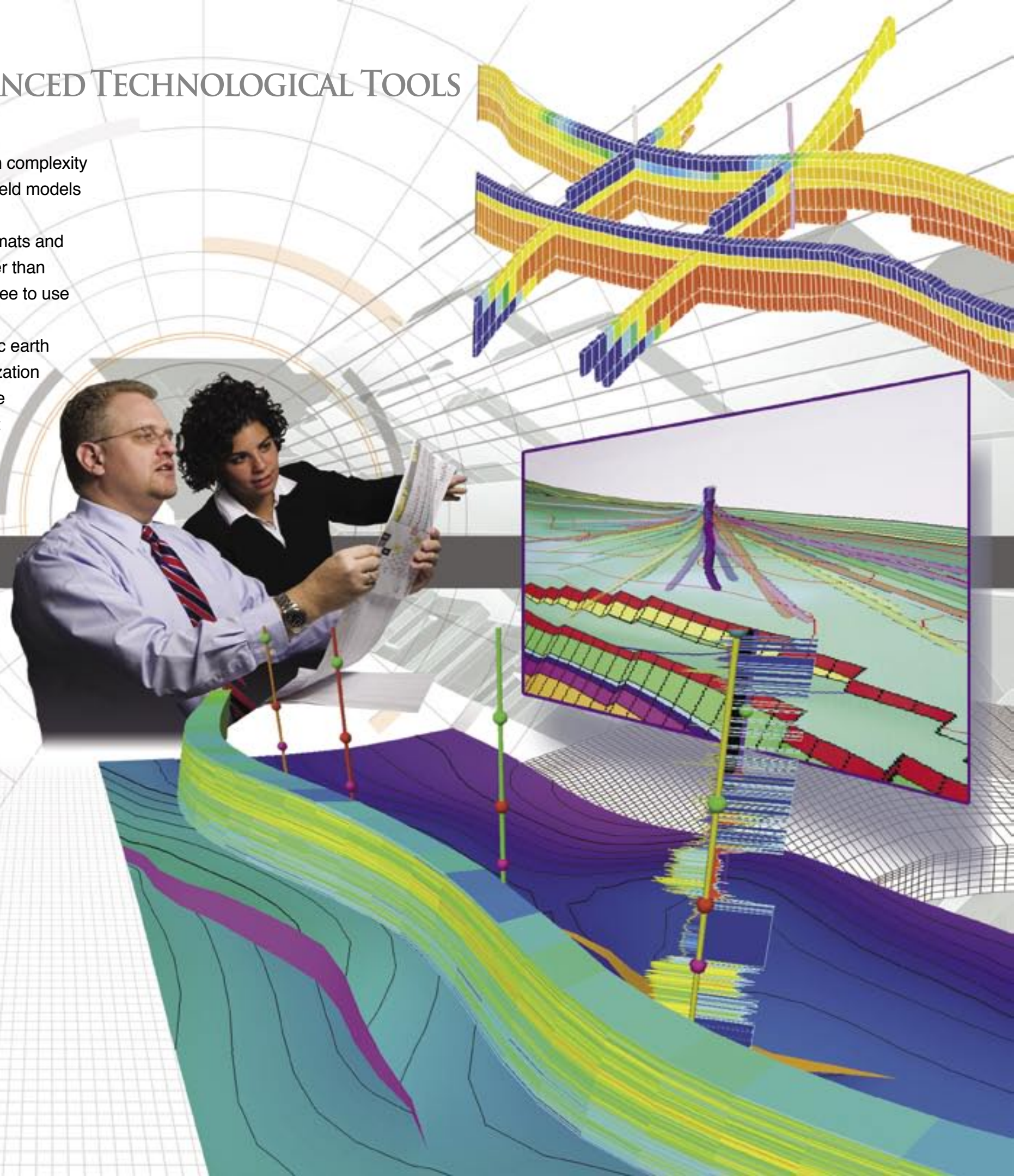
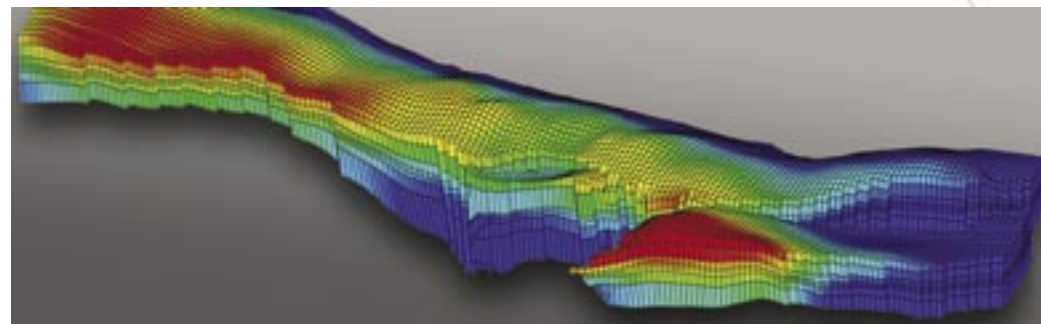
The Ryder Scott team maintains quality standards in all types of studies. They range in complexity from simple black-oil models involving a few wells to sophisticated, fully compositional or full-field models simulating hundreds of wells penetrating geologically complex reservoirs.

The simulation group uses the latest software and hardware to handle various data formats and calculation requirements. That allows engineers to spend their time analyzing reservoirs rather than dealing with data manipulation. Also, since Ryder Scott is not vendor specific, modelers are free to use the most appropriate simulation software package for each study.

Ryder Scott simulation specialists routinely use 3D visualization software to depict static earth models and the dynamic movements of fluids through the models. Through the use of visualization tools, the engineer gains a better perspective of an entire reservoir and a more thorough, more intuitive understanding of the modeled processes. The final results are recommendations that better prepare you to make the profit-driven field-development decisions vital to your company's livelihood.

Results that better prepare you to make profit-driven field-development decisions.

Ryder Scott recognizes the need for effective, ongoing communication with clients as well as very clear, specific study objectives.



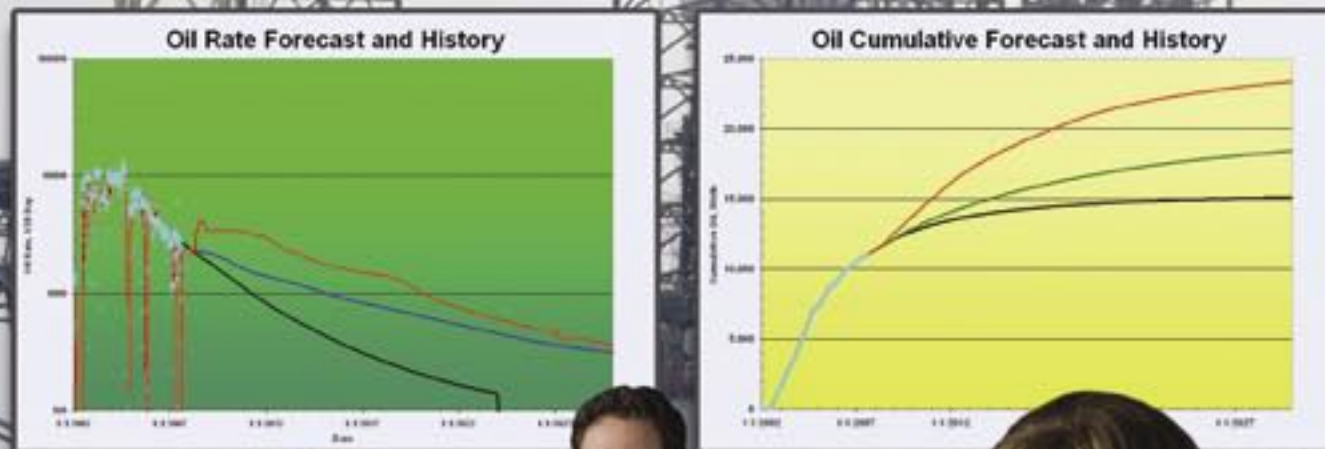
MAXIMIZING RESERVES THROUGH SIMULATION

If requested, a Ryder Scott reservoir simulation study can be analyzed for applications involving traditional petroleum reserves categories. As one of the world's largest independent reservoir evaluation consulting firms, Ryder Scott is intimately familiar with the reserves definitions of the Society of Petroleum Engineers Petroleum Resources Management System, U.S. Securities and Exchange Commission, Canadian Securities Administrators NI 51-101 and other bodies and classification systems.

Ryder Scott recognizes the difference between remaining recovery predicted by a model and volumes of hydrocarbons booked as proved, probable or possible reserves. Therefore, Ryder Scott can tailor the model construction and development process to ensure that the results will withstand the increased scrutiny necessary for a reserves certification.

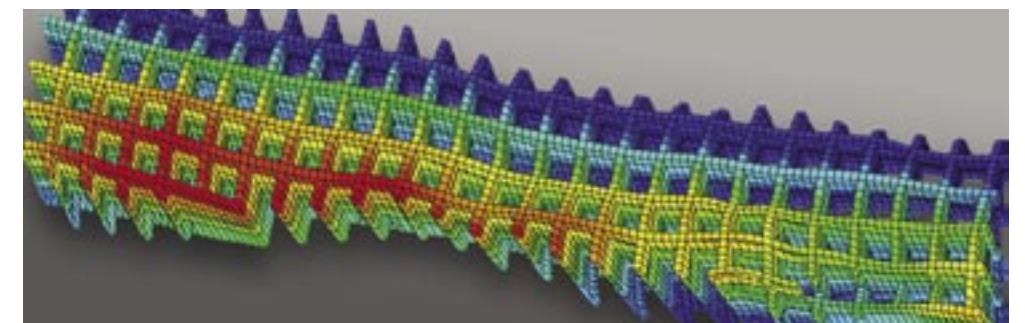
To maximize the reserves base, Ryder Scott analyzes modeling results to evaluate and rank optional development scenarios. For example, the outcome may be an opinion letter supporting a development drilling plan based on proved reserves additions as predicted by our integrated models.

Ryder Scott can tailor the model construction and development process to ensure that the results will withstand the increased scrutiny for reserves reporting.



For further information on modeling services, including recent studies, please visit our Web site, www.ryderscott.com, or contact the Reservoir Simulation Group at 713-651-9191.

Ryder Scott employs a wide range of experienced professionals.





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