# NITEC LLC

## Our Company

NITEC LLC was founded in 1995 by a group of highly experienced petroleum engineers with the goal of providing the best possible reservoir evaluation services to oil and gas companies and regulatory agencies. Accordingly, our services focus on maximizing the return on our clients' investments while minimizing their risks. To date, NITEC has had the opportunity to perform many large, fully integrated reservoir studies on highly complex reservoirs, as well as smaller reservoir and well evaluations. Building upon our founding goal, our company has continued to grow each year both in the number of projects awarded and in our reputation and recognition for producing outstanding reservoir studies. NITEC has in part accomplished this success by developing and utilizing integrated reservoir characterization software and new technologies. This project-based evolution of software tools, coupled with our technical capabilities, differentiates NITEC from other consulting companies.

## Our Philosophy

- Perform better reservoir characterization, data integration, and engineering analysis which lead to more accurate results and more reliable economic decisions
- Maximize return on our clients' investments and minimize their risk
- Automate and integrate processes to improve workflow efficiency and reliability of results thereby achieving more timely conclusions
- Develop new techniques and technologies to obtain better results from the available data

## Our People

NITEC staff has extensive experience in the international petroleum industry. Their expertise covers all aspects of reservoir engineering, characterization, and numerical simulation, as well as management of complex reservoir evaluation studies. In addition to our staff, NITEC has developed associate relationships with highly experienced companies and individuals in seismic interpretation, structural and stratigraphic geology, and petrophysical analyses. These consultants, working with NITEC, strengthen our ability to provide an exceptional level of expertise in all areas of reservoir characterization and to perform effective, efficient integrated reservoir studies.

Provider of ***LYNX***® and ***MatchingPro***® Software

## Our Services

NITEC services encompass all aspects of reservoir evaluation. Our evaluation is only deemed successful if we address our client's ultimate goal which is usually maximizing economic value at minimal risk. Our services include:

- **Integrated Reservoir Studies:** Management and performance of fully integrated studies focusing on the importance of integrating the characterizations from each of the scientific disciplines: geophysics, geology, petrophysics, and reservoir engineering.
- **Reservoir Characterization:** Geological modeling of sand deposition. Fracture characterization to define vertical/horizontal connectivity and matrix/fracture porosity using proprietary technology.
- **Reservoir Engineering:** PVT phase behavior (black oil and compositional), saturation functions (relative permeability, capillary pressure, and end-point analyses), well test analysis, production analysis, standard and compositional material balance.
- **Reservoir Simulation:** Specializing in building simulation models for any commercial simulator for black oil, compositional and thermal applications. Gas storage reservoir modeling experience in aquifers, depleted oil and gas fields. Experience in clastic and carbonate reservoirs.

## Our Products: *LYNX*® and *MatchingPro*®

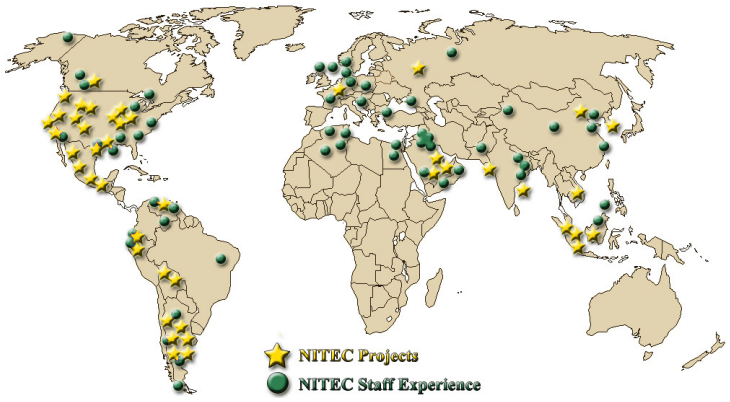
NITEC has developed LYNX, a fully integrated reservoir characterization and simulation history matching workflow product. It incorporates new technologies and methodologies to improve the quality of reservoir characterization and the resulting numerical simulation history matching process and predictive analyses. The software's single database eliminates possible data transfer errors, provides a consistent single source for data, and significantly reduces the amount of time required to perform integrated studies. The product is capable of evaluating the quality of a history match (HM) run and recommending the best HM parameters to achieve an optimal HM. It can handle multiple characterization cases and provide a comparison of their results. Some important capabilities are:

- **MatchingPro HM Guide:** Sensitivity analysis of HM volume/pressure mismatches to selected HM parameters and recommendations via neural net correlations to the best combination of parameters to minimize HM mismatches.
- **Stratigraphy and Cross-sections:** Select formation tops visually from imported well log data or results. Correlate wells individually or through integrated cross-sections.
- **Facies Identification, Clustering, and Property Modeling:** Flexible facies and cluster identification integrated with reservoir property evaluation, summations, and mapping through kriging.
- **Fracture Characterization:** Quantification of fracture volume and connectivity distribution, even without visual log data, and up-gridding to numerical simulation models.
- **Sand Body Modeling:** Honors hard data from wells for sand presence and soft data from seismic attributes in stochastic modeling of fluvial, turbidite, deltaic, and shallow marine sand bodies. Tracking of petrophysical properties for upscaling to simulation.
- **Simulation Pre-processing:** Population of numerical simulation grids with reservoir characterization properties for matrix and fractures. Capability to locate complex well completions in simulation grids, including multilaterals. Capability to export and merge schedule data for wells and gathering centers with completion, production, and pressure histories.
- **Simulation Post-processing:** Visually compare simulation well performance to actual history. Calculate well and field history match quality. Map/plot history match quality (volumes/pressures) for selected time intervals.
- **Other Capabilities:** Predictive Peng-Robinson EOS, Compositional MatBal, Well Log derived Capillary Pressure, Water Contact and Compartmentalization Analysis from Well Logs and Bubble Maps.

## Our Clients

NITEC has significant experience working with companies in the domestic and international oil & gas industry. Our staff have provided services and have expertise throughout the world. A partial list of clients includes:

Andina, S.A. (Boliva)
Baker-Atlas (formerly SSI) (USA)
Bellwether Exploration (Ecuador/USA)
Breitburn Energy Corp. (USA)
Bureau of Land Management (USA)
CMS Gas Transmission (Argentina/USA)
Computer Modeling Group (Canada)
ConocoPhillips (Qatar)
EnCana (USA)
Enstor Operating Co. (USA)
Geostock (France)
Grynberg Petroleum (USA)
Gujarat State Petroleum (India)
Kinder Morgan Inc (USA)
Laclede Gas (USA)
LG&E Energy (USA)
Maxus Energy SE Sumatra (Indonesia)
Noble Energy (USA)
Occidental of Elk Hills (USA)
PDVSA (Venezuela)
Pemex (Mexico)
PetroProduccion (Ecuador)
Plains Petroleum (USA)
Puget Sound Energy (USA)
Qatar Petroleum (Qatar)
Rancher Energy (USA)
RasGas Co. Ltd (Qatar)
Reliance Industries (India)
Repsol-YPF (Argentina)
Schlumberger (China)
Schlumberger (Egypt)
Shell (Qatar)
TICORA Geosciences (USA)
Texas Gas Transmission (USA)




## Our Projects

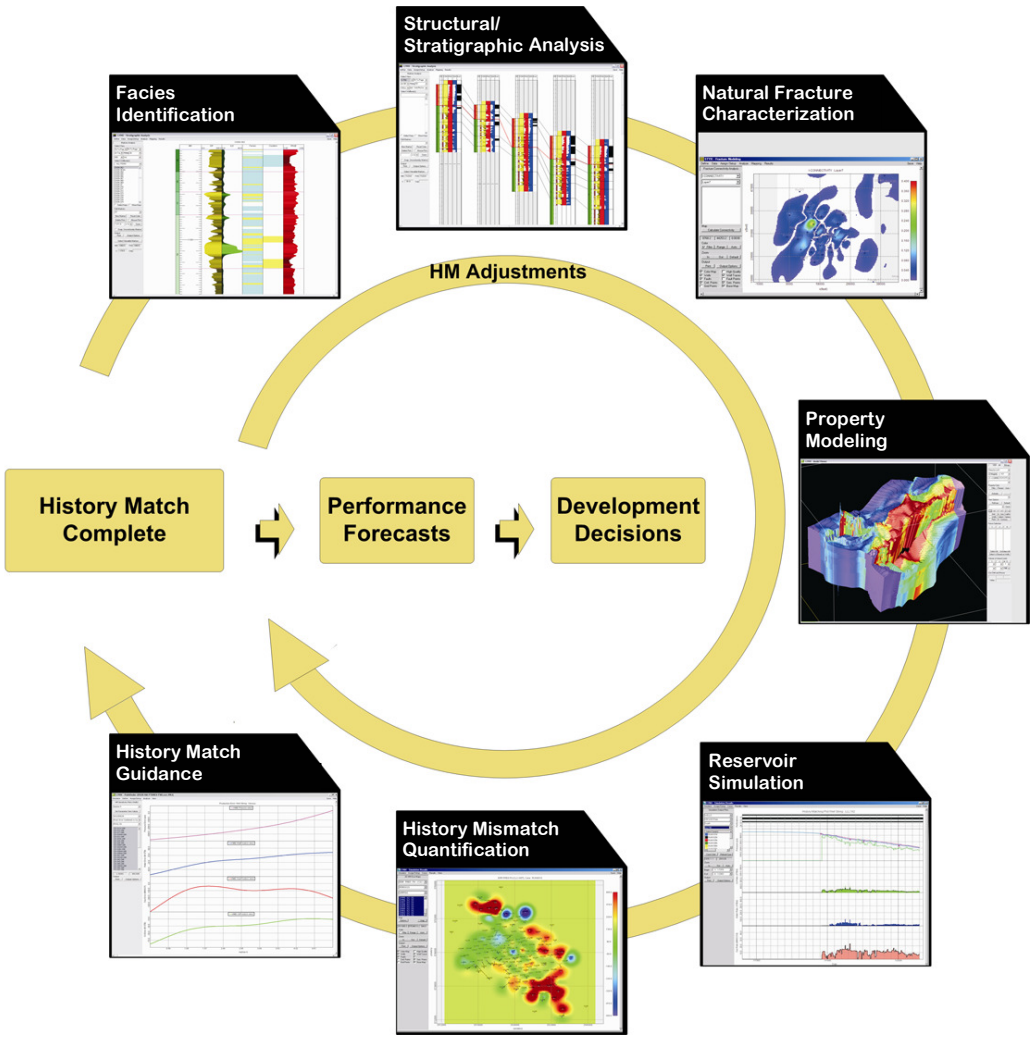
The reservoir evaluations NITEC has performed vary in size, complexity, and reservoir type reflecting the variations found in petroleum reservoirs worldwide. Our projects have included volatile oil, medium & heavy oils, gas, gas-condensate, and gas storage fields found in clastic and carbonate lithologies with varying degrees of faulting and fracture complexity. Due to the complexity of many of our projects, we have found that the available technologies or processes are often inadequate to resolve various reservoir issues. Hence, NITEC has developed appropriate technologies and software to address these problems. Typical projects include:

- **Fracture Characterization:** A highly fractured and faulted reservoir in Mexico with an active aquifer was successfully characterized with NITEC's in-house technology. Reservoir simulation resulted in identification of higher productive zones which were confirmed by drilling.
- **Gas Storage:** A unique helium gas storage project in the U.S. required an improved reservoir characterization in order to history match 78 years of production/injection performance. Future production plans were optimized to achieve a U.S. Congress-mandated depletion policy.
- **$CO_2$ Injection:** A number of aging oil fields in Wyoming were evaluated for their recovery potential under $CO_2$ slug and continuous injection processes. Well spacing and the volumes of $CO_2$ injected were found to be critical to effective oil recovery. Natural fractures in the reservoirs required careful attention due to capillary forces and diffusion characteristics of matrix rock.
- **Compositional Simulation:** This light-oil field in Venezuela with a thin oil rim and overlying gas condensate zone was characterized and simulated. Understanding reservoir performance required identification and characterization of asphaltene deposition in the oil rim and detailed simulation of over 100 wells with multiple production strings. Simulation predictions provided new completion alternatives and workovers to improve future oil recovery.

# *LYNX*® and *MatchingPro*®

## Reservoir Analysis and History Matching Software

## Simplify the Simulation Process




All figures from NITEC's LYNX and MatchingPro Software.


NITEC LLC
475 17th Street, Suite 1400
Denver, CO USA 80202

1.303.292.9595
solutions@nitecllc.com
www.nitecllc.com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