

Reservoir Management References

North Sea Projects

Project	Description	Client & Date
Petroleum Engineering Support for Pentex UK Land Assets	TRACS International manages and conducts all Petroleum Engineering aspect of the 20 Pentex UK land assets. This contract comprises of constant field care and maintenance, and periodic subsurface studies, including development planning and guidance on future development economics and strategy of the company portfolio.	Pentex UK 1998-2005
Alder Field development planning	TRACS provided all G&G support for the development planning of this field, including seismic interpretation and the geological model build. The project passed through sanction during 2005.	ChevronTexaco 2004-2005
Barbara Field reservoir geological model	TRACS performed the geological and volumetric analysis of the Tertiary turbiditic sands, whose reservoir is set in a salt diapir structure. A 3D model was built and volumetric and connectivity sensitivities were tested. All scenarios were upscaled for simulation in 'Eclipse' and a range of reserves outputs was evaluated. Optimised wellpaths were planned and evaluated.	Dana 2005
Barbara Full Field Modelling	TRACS produced a full field model of the Barbara-Phyllis gas-condensate accumulation to assess the range of uncertainties which might impact development decisions. An experimental design approach was followed to allow efficient manipulation of the numerous significant uncertainties and to allow generation of P10-P50-P90 reserves estimates.	Dana 2006
Barbara Phyllis reservoir modeling	The project objective was to evaluate GIIP and reserves uncertainty in the Barbara-Phyllis gas accumulation. Technically justifiable P10-P50-P90 reserves profiles were generated, for use in the field development plan for Barbara-Phyllis. The aims of the study were achieved by 3D static and dynamic modelling, with an experimental design approach followed to establish the P10 to P90 technical reserves.	ExxonMobil 2007
Barnacle reservoir development planning	TRACS performed all subsurface work to support the development planning and drilling of the small Barnacle discovery, to the North of the Brent Field. This included seismic reinterpretation, Petrel geological model build and reservoir simulation to assess reserves ranges and optimise the well location for this single-well development.	EDP 2005
Bridport, Frome and Kimmeridge reservoir modeling	These three minor reservoirs within the Wytch Farm area were modelled independently to identify infill targets for further development of these fields. This involved a mixture of 3D static and dynamic modeling with more conventional analytical work.	BP 2006-2008
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Cairngorm reservoir modelling	A 3D static and dynamic modelling study to evaluate the oil recovery uncertainty in a fractured granite basement discovery (Cairngorm). Experimental design has been used to derive technically justifiable low-mid-high production profiles.	Petros Geoscience March 2008

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Clair Field Area Development Planning	TRACS has modelled various parts of the non-core development of Clair, including the complex fractured Devonian sandstones, and the fractured Basement to allow future long term development planning for the asset. This has involved seismic interpretation, 3D reservoir modelling, fracture modelling using FRACA, well test evaluation and fracture network models within FRACA and simulation using VIP.	BP 2006-2008
Completion Designs	TRACS have now designed over two hundred individual completions, including subsea, land, platform, gas, oil, and water. Expertise has been specifically developed in areas of HPHT, multi-purpose, artificial lift and stimulation.	Various
Deepwater fracturing, West of Ireland	This study combined reservoir modelling with detailed fracture models for the analysis of a large, but very low permeability offshore gas field. The study examined both vertical and high angle wells and included considerations for fracturing these subsea wells.	2006 – 2007
Evaluation of UK and Faroe Frontier Blocks for TAQA	A very experienced TRACS team evaluated four packages of Assets located in Frontier Blocks in the Faroe, West of Shetland and North and West of Ireland waters. The Blocks include exploration acreage in addition to several discoveries. The team technically and economically evaluated the acreage and advised the client on the farm in strategy.	TAQA
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Farragon Field Development Planning, Central North Sea	Integrated subsurface study in support of development planning for the Farragon Field. The subsurface TRACS team worked as a dedicated team for several months in the BP office embedded into the other BP development teams to see the project through the 'select' stage. The workscope included all subsurface interpretation and modelling (petrophysics, geophysics, geology, reservoir engineering) including internal peer reviews and technical partner meetings, and generated well numbers, volumes and production forecasts.	BP 2003-2004
Gannet B 4D seismic	Multidiscipline review of the Tertiary Gannet B gas + oil rim field: seismic interpretation, petrophysical review, geological interpretation and analogue gather, PVT and rel perm review static and dynamic modelling; the work was a novel integration of 4D seismic data in a turbidite field with reservoir simulation - using 4D data as a history matching tool. Work was published at the EAGE annual convention in 2001, winning best paper	Shell 2000
Merganser	Reservoir modelling and volumetrics of a salt-influenced submarine fan reservoir	Shell 2004
Oil Discharged in Produced Water Survey for UKOOA, Aberdeen	The UK Offshore Operators Association selected TRACS International to perform an industry survey of forecast produced water volumes and oil in water concentrations as part of a combined response to DTI future regulations, which will be implemented by 2006. The study involved a survey of 15 North Sea operators, and an analysis of their responses.	UKOOA 2002
Reservoir Modelling and Simulation of Magnus LKCF Reservoir for BP	BP provided a seismic interpretation of the Lower Kimmeridge Clay Formation (a turbidite sandstone reservoir) from which TRACS generated a series of alternative static reservoir models in PETREL. These were progressed to simulation models in VIP, and a history match was attempted to define a range of uncertainty in reservoir models. Forward development planning was investigated, resulting in the proposal for four infill targets in this mature reservoir.	BP 2001-2002

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Reservoir Simulation of Cyrus Field for BP, Aberdeen	Working alongside a BP geophysicist, TRACS interpreted and mapped the reservoir, and built sector and full field models of this Palaeocene sandstone reservoir to support the proposal to drill an infill well in the eastern area of the field. Tools used included MBAL, Petrel and ECLIPSE 100.	BP 2001-2002
Rhum reservoir geological model	TRACS geologist, Dave Southwood performed the Rhum Field 3D geological modelling and volumetric sensitivity analysis of this high pressure, high temperature dry gas Jurassic reservoir. The results were exported to a VIP simulation model and the results from dynamic work were fed back for further iterations of the static modelling. The results formed the basis of reporting for SEC returns and internal BP documentation.	BP 2005
Schiehallion oil rim development study	A mixture of mechanistic and full field models were constructed to investigate the feasibility of thin oil rim development in the field, resulting in the identification of drilling targets with horizontal wells. This incorporated the modelling of internal control valves (ICVs) within the well completion to propagate a uniform inflow along the well length.	BP 2007
Stimulation Designs for a Naturally Fractured Chalk Reservoir	The Machar field is a subsea, low permeability, naturally fractured chalk reservoir. It requires effective stimulation in order to be economic. TRACS are responsible for the design and supervision of these stimulations. Successes include a world record increase in productivity following a stimulation and the world's first stimulation through a subsea smart completion.	1995-2005
Studies for Shell Expro's New Business Development Group	TRACS has over recent years provided ad-hoc petroleum engineering input to a business unit identifying exploration prospects and bringing discoveries through to the field development stage in the Outer Moray Firth (UK North Sea). The input to the team has mainly been in the form of reservoir simulation models to evaluate development options but has also covered other aspects of petroleum engineering, including well and pipeline modelling.	Shell 1997-2002
Subsea stimulation and completion design, Shell's Curlew C field	This small field is a chalk reservoir in the central North Sea. It requires stimulation and a subsea tie-back in order to be economically developed. The study concentrated on the optimum stimulation design covering both acid and proppant fracturing, bearing in mind the subsea challenges. A simple "limited entry" perforating system was proposed, with perforation tests performed to back-up the models. Several innovative techniques were also developed for the completion; for example a well start-up system was proposed whereby lift gas could be supplied via a subsea umbilical to the completion. Assessing this technique required the use of pressure transient software and the industry standard software (OLGA) was used for this purpose.	Shell 2005-2006
Well test Proposal for Cairngorm	A outline well test design for 16/2b-5 Cairngorm appraisal well.	Petros Geoscience May 2008
Wytch Farm reservoir modeling	TRACS used a scenario based approach to mature field uncertainty management with multiple deterministic history matching. TRACS updated RMS geological models and the field data base as the basis for VIP simulation model rebuild of the Sherwood reservoir. The work included used of SBED technology for effective property modelling of small scale detail and was prefaced by a petroleum engineering review of the floodfront understanding. The model will be used for further infill drilling activity. TRACS will provide reservoir engineering support for this.	BP 2004-2006

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Glitne FPSO study	RES conducted a full review of Statoil's Glitne discovery on behalf of PGS production. Simulation studies showed large benefit using an FPSO instead of a tie in of the Glitne discovery to the Sleipner field as proposed by Statoil	PGS Production 2000 - 2001
Varg Field management	RES served as Pertra's subsurface and production department. Planning and drilling of 8 new wells. Identified 50 million additional barrels of oil.	Pertra 2002 - 2004
Fram Subsurface Team	A full subsurface team consisting of geologist, geophysicist, petrophysicist, reservoir and petroleum engineer from AGR has performed all underground work in the Fram field development	StatoilHydro 2005 - present
Data management	Data management of well data both national and international assets. Arrange and load data into Recall database	DNO 2007- Present
Field review and production forecasting	The Vale field was re-interpreted, updated geological model (RMS) and a new simulation model created. The field was history matched and new prediction performed by use of Eclipse	Norsk Hydro 2006/7
Njord Simulation	AGR were responsible of updating and history matching the simulation models at the Njord field	StatoilHydro 2007 - 2008
Barent Sea Multiclient project	Seismic interpretation covering central parts of the barents sea area for key horizons. Consistent petrophysical evaluation of 34 exploration wells generating CPI's and average properties for key intervals	Multi client 2007-2008
Geological and Geophysical Evaluation of the Exploration Potential and Potential Hydrocarbon Resource Estimates for the Bream Brisling area	RES review all available data for the relinquished Bream, Brisling and block 18/10 area. Petrophysical re-evaluation, DST data and new seismic interpretation showed increased volumes for the old discoveries	2005
Field development of Grane C-structure	AGR conducted as Hydro's subsurface team in the DG2 project team. The work consisted of seismic interpretation, geological modeling and reservoir simulation	Hydro 2006 – 2007
Svale Asset evaluation	AGR team covering geology, petrophysics and reservoir engineering perform a feasibility study for the Melke Formation on the Svale discovery	StatoilHydro 2008
Kraken asset management UK	AGR has served as Carnaments subsurface/topside department on the Kraken field development. The work has covered seismic interpretations, petrophysical evaluation and simulation of heavy oil. Screening of field development solutions using AGR field management group has been part of the project	Canamens 2007/2008
Assets screening	AGR performed a screening of potential candidates for a jack-up development on both the Norwegian and UK continental shelf for Skeie Energy	Skeie Energy 2007
Sedimentological interpretation and core description	Conduct sedimentological interpretation and core descriptions of Peik, Luno, Nemo and UK blocks 9/10	Lundin 2008
Snøhvit oil zone	Screen possibility for developing Snøhvit thin oil zone by use of DPSO	Petoro 2007
Reservoir technical work Trestakk field development	Build simulation model and screen different field development scenarios	Statoil 2007
Geological model Morvin field	Revise geological model on the Statoil Morvin discovery	Statoil 2007
Reservoir simulation Heidrun Field	History match the Heidrun field by use of Mepo	Statoil 2007