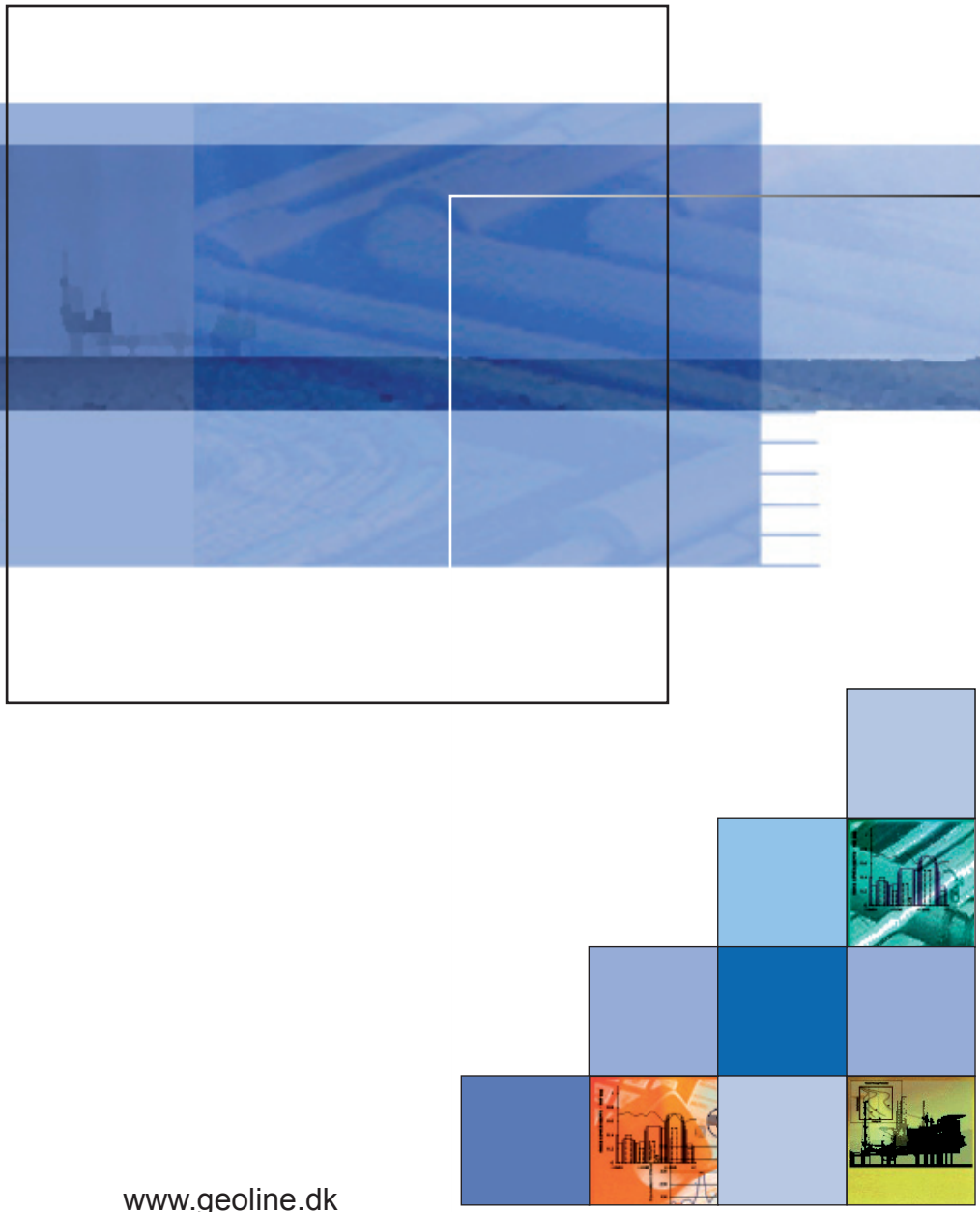


References 2000 - 2007



Experience

Find below a list of the latest projects GeoLine has been involved in. Other internal projects include R&D projects for the development of state-of-the-art software GeoLine3D as a tool to simulate the designed pipeline in a realistic three-dimensional environment. The software includes advanced software to visualize and fly-through an imported DTM. For more detail please visit www.geoline3d.com.

2007

- Re-assessment Out-of-Straightness Analyses, Siri - Cecilie 10" Water Injection Pipeline and Sire - Cecilie 4" Gas Lift Pipeline - Offshore Denmark. Client: DONG E&P AS
- Final Out-of-Straightness Analysis, Local Buckling Unity Check and Pipeline Crossing Analysis - Halfdan NE Phase 3 Development Project. Client: Mærsk Oil and Gas AS
- Online Out-of-Straightness Analysis, and survey QA data control 16" Gas Pipeline (6.8km), 8" Liquid Pipeline (6.8km) and 20" Multiphase Pipeline - Halfdan NE Phase 3 Development Project. Analysis carried out offshore during survey and trenching operations. Client: Mærsk Oil and Gas AS
- GeoLine3D FE-engine in-house development and project management of graphical user interface development project

2006

- Re-assessment Out-of-Straightness Analyses, Siri - Nini 10" Water Injection Pipeline and Siri - Nini 4" Gas Lift Pipeline - Offshore Denmark. Client: DONG E&P AS
- Final Out-of-Straightness Analysis and Local Buckling Unity Check for 16" Gas Pipeline (17km) and Pipeline Crossing Analysis - Valdemar BA Development Project. Client: Mærsk Oil and Gas AS
- Trenching and Quality Control Supervisor for composite Power Cable - Valdemar BA Development Project. Client: Mærsk Oil and Gas AS
- Trenching and OOS Quality Control Supervisor & Out-of-Straightness Analysis for 16" Gas Pipeline (17km) - Valdemar BA Development Project. Analysis carried out offshore and onshore during survey and trenching operations. Client: Mærsk Oil and Gas AS
- OOS Survey Data Study - Client: Mærsk Oil and Gas AS
- Review of Procedures (i.e. Trenching) - Client: Mærsk Oil and Gas AS
- Geotechnical Site Investigation Survey - Flyndre and Peveril Rig Site Location - UK Sector Client: Mærsk Oil and Gas AS
- GeoLine3D FE-engine in-house development and project management of graphical user interface development project

2005

- Trenching and OOS Quality Control Supervisor & Out-of-Straightness Analysis for 12" Gas Pipeline (18km) - Valdemar B Development Project. Analysis carried out offshore and onshore during survey and trenching operations. Client: Mærsk Oil and Gas AS
- Final Out-of-Straightness Analysis and Local Buckling Unity Check for 12" Gas Pipeline, Valdemar B Development Project. Client: Mærsk Oil and Gas AS
- On-Bottom Roughness and Span Analyses for Simian Accelerated Wells - Simian and Sapphire Field Development Project offshore Egypt. OBR analyses and route optimization for two pipelines. Verley and Lund soil model was used. Client: Genesis Oil and Gas Consultants & Technip Offshore UK

2004

- Out-of-Straightness Analyses for 8" multiphase pipeline with a 3" piggyback gas lift pipeline. Stine Development Project, Offshore Denmark. Client: DONG E&P AS
- Pile driveability Analysis of large monopiles for Butendiek Windfarm Project. Client: IMS Ingenieurgesellschaft mbH
- Tie-in-Analysis for 10" Water Injection pipeline with a 4" piggyback gas lift pipeline. Sofie Development Project, Offshore Denmark. Client: DONG E&P AS
- Final On-Bottom Roughness and Span Analyses incl. route optimization for 21 pipelines. Simian and Sapphire Field Development Project offshore Egypt. OBR analyses and route optimization for 21 pipelines. In total 480km pipeline was analyzed. Verley and Lund soil model was used. Client: Genesis Oil and Gas Consultants & Technip Offshore UK
- On-Bottom Roughness and Span Analyses for 6 pipelines. In total 186km pipeline was analyzed. Tender support for Petrobras PDEG-B project offshore Brazil. Verley and Lund soil model was used. Maximum allowable freespan lengths were determined using DNV FAT-FREE. Client: Technip Offshore UK
- On-Bottom Roughness Analysis - Tyrihans field development offshore Norway. In total 126km pipeline was analyzed. Client: Rambøll & Statoil ASA
- Out-of-Straightness Analyses for 26" gas pipeline. Re-analysis, 96km pipeline. Halfdan Tyra field development offshore Denmark. Client: Maersk Oil and Gas AS
- Upheaval Buckling and Out-of-Straightness Analysis. Nini Cecilie field development offshore Denmark. Client: DONG E&P AS

2003

- Preliminary On-bottom Roughness and Span Analysis, Simian Sapphire Development Project. Offshore Egypt. In total 21 pipelines ranging from 4" to 26" were analysed. Total pipeline length is approx. 480km. Client: Genesis Oil and Gas Consultants Ltd
- Online Out-of-Straightness Analysis and survey data QA control, 26" Gas Pipeline, 96km. Analysis carried out offshore during survey and trenching operations. Client: Mærsk Oil and Gas AS
- Online Out-of-Straightness Analysis, and survey QA data control 24" Interconnection Gas Pipeline, 28km Analysis carried out offshore during survey and trenching operations. Client: Mærsk Oil and Gas AS
- Onshore Pipeline Burial, 24" Gas Pipeline, Rivers Field Development. Client: Genesis Oil and Gas Consultants Ltd.
- Out-of-Straightness Analysis, 12" and 14" Multiphase Pipeline, Nini Cecilie Field Development. Client: DONG E&P AS
- Upheaval Buckling Analyses, 26" Gas Pipeline, Tya WE in to NOGAT F3. Imperfections with natural and actual imperfection lengths analysed (In total 40 cases). Client: Mærsk Oil and Gas
- Upheaval Buckling Analyses, 24" Interconnection Gas Pipeline, Halfdan C - Halfdan BA - Tyra WE. Imperfection height 0.1m to 0.5m with natural and actual imperfection lengths were analysed (In total 40 cases). Client: Mærsk Oil and Gas
- On-bottom Roughness and Span Analysis. Seven Heads Development. Client: Genesis Oil and Gas Consultants Ltd.
- Pile Capacity Back Analysis, MOQ Al-Shaheen field offshore Qatar. Client: Mærsk Oil Qatar AS

2002

- SAGE Profile software v. 6.2 developments - June to December 2002. Client: Thales GeoSolutions SA/NV
- Predictive Upheaval Buckling Analysis, 10" Gas Pipeline, Dutch Sector of the Southern North Sea. Tender support for Technip-Coflexip
- Predictive Upheaval Buckling Analysis, 6" Gas Pipeline, Dutch Sector of the Southern North Sea. Tender support for Technip-Coflexip
- SAGE Profile software v.6.1 developments. Include modifications to FEM engine and finalisation of advanced viewer. Client: Thales GeoSolutions SA/NV.
- Pile driveability assessment check for 8 jacket platforms located in the MOQ Al-Shaheen field offshore Qatar. The work includes review of the geotechnical data (borehole logs, CPT profiles and laboratory soil test data) for the driveability design soil profile, soil resistance during driving (SRD) analyses and wave equation analyses. Client: Mærsk Oil Qatar AS

- Pile Capacity Back Analysis, Guillemont West Field, North Sea. The work included review of all soil investigation reports and driveability back analysis. Technip-Coflexip
- Driving monopiles into weak rock - desk study. Client: Hydro Soil Services NV

2001

- Pile driveability assessment of large monopiles for Rhyl Flats windfarm, including review of geotechnical data (boreholes, CPT profiles and laboratory soil tests) for the design soil profiles, soil resistance during driving analysis and wave equation analysis. Client: Hydro Soil Services NV
- Pile driveability assessment of large monopiles for North Hoyle windfarm, including review of geotechnical data (boreholes, CPT profiles and laboratory soil tests) for the design soil profiles, soil resistance during driving analysis and wave equation analysis. Client: Hydro Soil Services NV
- Pile driveability assessment of large monopiles for Frederikshavn research wind turbines. Client: Hydro Soil Services NV
- Upheaval buckling calculations, out-of-straightness analysis and online verification of as-trenched survey results for Halfdan Phase 3 development, Tyra SE Development and Kraka Replacement pipelines. In total 7 pipelines from 6" to 16" were analysed using state-of-the art finite element approach. Client: Mærsk Oil and Gas AS. The work has recently been completed successfully and approved by Bureau Veritas.
- Pipeline crossing analysis. Client: Mærsk Oil and Gas AS
- Client representation [twice] during as-trenched survey operations carried out by DSND Norway. Client: Mærsk Oil and Gas AS
- Advanced pipeline engineering training course for Vietsovpetro in Vietnam. The course was carried out with KW.ltd UK. Client: Thales GeoSolutions SA/NV
- Pile driveability assessment of large monopiles for Rødsand and Samsø Windfarms, including review of geotechnical data (boreholes, CPT profiles and laboratory soil tests) for the design soil profiles, soil resistance during driving analysis and wave equation analysis. Client: Hydro Soil Services NV
- SAGE Profile software planning, design, development and client support. SAGE Profile is a state-of-the art pipeline finite element program specially developed for aid in the design and installation of subsea pipelines. Client: Thales GeoSolutions SA/NV
- Development of advanced viewer for SAGE Profile software using PE4, including implementing Rainbow network technology. Client: Thales GeoSolutions SA/NV
- 3D finite element analyses of lateral loaded suction anchors. Research and development project. Client: CRISP Consortium Ltd
- SAGE Profile training course at John Brown Hydrocarbons Ltd (formerly Kvaerner) in UK

Other Experience

- Pipeline Optimization Studies 16" pipeline. Out-of-straightness analysis, pre-sweeping and rock dump optimization for Conoco Phoenix Development. Client: ABB Lummus Global
- Out-of-straightness analysis 10" gas pipeline. Conoco Boulten Development Project. Client: McDermott Subsea Construction Ltd.
- STRIDE JIP - Riser seabed interaction study
- Offshore geotechnical site investigations - client rep., planning and quality control of laboratory testing programs, interpretation of geotechnical and survey data and third party review of geotechnical engineering studies.

**“Without dreams
there is no room for innovation”**



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